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The Fortaleza Valley, Peru: Archaeological Investigation of Late Archaic Sites (3000–1800 BC)

Winifred Creamer

Alvaro Ruiz Rubio

Manuel F. Perales Munguia and

Jonathan Haas



October 1, 2013
Publication 1566

PUBLISHED BY FIELD MUSEUM OF NATURAL HISTORY

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Cover photograph: Overview of the Late Archaic site of Caballete in the Fortaleza Valley.

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Accepted March 12, 2013

Published October 1, 2013

Publication 1566

PUBLISHED BY FIELD MUSEUM OF NATURAL HISTORY

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The Fortaleza Valley, Peru: Archaeological Investigation of Late Archaic Sites (3000–1800 BC)

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Abstract

Monumental architecture, including stepped pyramids, sunken circular plazas, and upright monoliths (*huanacas*), has been identified at sites throughout the Norte Chico region along the coast of Peru. During 2003 and 2004, test excavations were conducted at six of these sites in the Fortaleza Valley. Excavation included 1 × 2-m test pits and sections cleared along road cuts and looters' pits. Good preservation of plant materials, along with fiber bags, or *shicra*, used in construction of monumental architecture yielded ample samples for dating. This report describes and illustrates the precise context of the samples and provides the radiocarbon dating results for 80 samples. Project results show that the sites tested were occupied during the Late Archaic Period between 3000 and 1800 BC. The pattern of constructing large mounds paired with sunken circular plazas clearly begins by the third millennium BC, and a U-shaped layout of sites appears to develop during that period, as indicated by the regularity of site plans and monuments at sites such as Caballote and Porvenir.

Resumen

La arquitectura monumental, incluyendo pirámides escalonadas, plazas circulares hundidas, y monolitos verticales o huanacas, han sido identificados en sitios en toda la región Norte Chico en la costa del Perú. Durante 2003 y 2004, las excavaciones de prueba se llevaron a cabo en seis de estos sitios en el Valle de Fortaleza. Las excavaciones incluyeron fosas midiendo 1 m x 2 m y secciones despejadas a lo largo de los cortes de carreteras y las fosas de saqueadores. La buena preservación de los materiales vegetales, junto con bolsas hechas de fibra o shicras utilizados en la construcción en la arquitectura monumental dio amplias muestras para poder conseguir la edad por medio de radiocarbono. Este informe describe e ilustra el contexto preciso de las muestras y proporciona los resultados de datación por radiocarbono de 80 muestras. Los resultados del proyecto indican que los sitios analizados fueron ocupadas durante el período Arcaico Tardío entre 3000-1800 antes de Cristo. El patrón de construir grandes montículos emparejado con plazas circulares hundidas comienza claramente durante el tercer milenio antes de Cristo y el plan de construcción en forma de "U" parece desarrollarse durante este periodo, según lo indicado por la regularidad de los planos del sitio y monumentos como Caballote y Porvenir.

Introduction

The four valleys of Huaura, Supe, Pativilca, and Fortaleza constitute what is known locally as the Norte Chico (Fig. 1). All these valleys are relatively close to each other, with a distance of less than 60 km separating the southernmost from the northernmost. Inland, dry streambeds connect the valleys to one another. Although the Norte Chico was on the margins of Peruvian civilization for most of the past 5000 years of history and evolution of Andean civilization, it appears to have played a starring role in the emergence of that civilization. That archaeologists did not anticipate construction of monumental sites during the third millennium BC is

demonstrated by Andean chronology. In Lumbreras's developmental sequence (Table 1), the period 3000–1800 BC is the Late Archaic, implying the final transition from semisedentary to settled village life and food production. Rowe characterized the period as "preceramic" based on the absence of pottery production in the Peruvian Andes at that time, without reference to architecture.

At approximately 3000 BC, however, large residential and ceremonial sites began to appear along the coast, especially in the valleys of the Norte Chico. By 2500 BC, there were 10 or more of these sites growing side by side, and by 2200 BC, there were more than 30. Among the other large sites occupied in Peru in the third millennium BC were La Galgada (Grieder

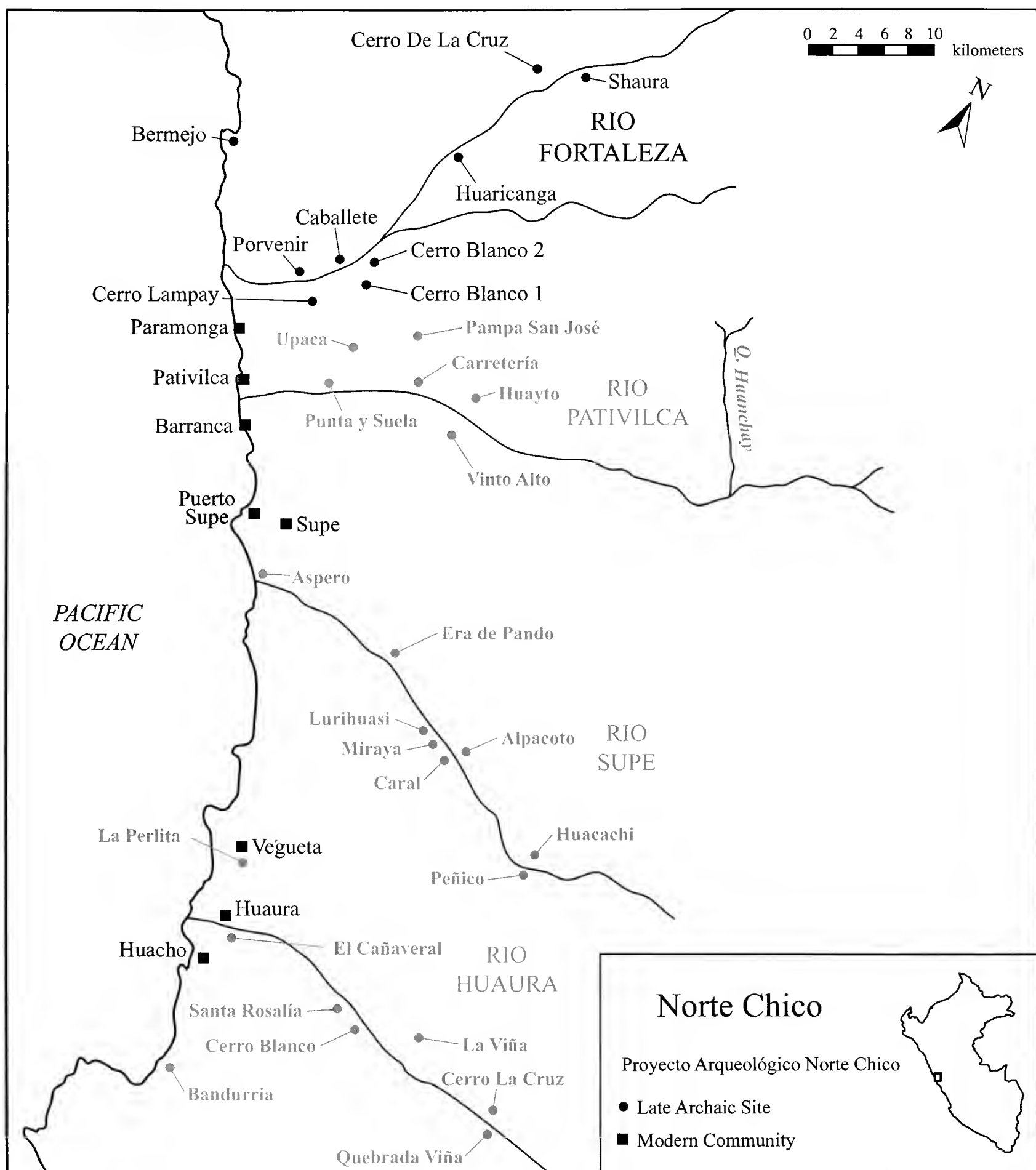


FIG. 1. Map of Norte Chico region highlighting the Fortaleza Valley and showing sites tested in 2003–2004 and sites mentioned in the text.

et al., 1988), El Paraiso (Engel, 1966; Quilter, 1985), and Huaca Prieta (Bird et al., 1985), each an individual isolate. From a panregional, Andean perspective, the Norte Chico stands out as a remarkable example of pristine cultural florescence at the very beginning of one of the world's great civilizations.

In this volume, we document the occupation of six sites in the Fortaleza Valley. When we first visited these sites, each displayed characteristics of Late Archaic sites that had just been dated to the third millennium BC (Shady et al., 2001). Absolute dates for early mound construction were rare, and

there was a clear need to determine whether mounds like those built at Huaca Prieta (Bird et al., 1985), Aspero (Feldman, 1980), and Caral (Shady et al., 2001) were unusual early expressions of complexity or whether the Late Archaic was characterized by many sites with large mounds and associated architecture. We therefore undertook investigation of sites in the Fortaleza Valley that lacked ceramics (that appear along the coast of Peru in the Initial Period, 1800–900 BC) and had the large-scale stone platform mounds of Late Archaic Period sites in the nearby Supe Valley (Zechenter, 1988; Shady, et al. 2001; Shady, 2004). The testing of these Fortaleza Valley sites

was preceded by similar testing of mound sites in the Pativilca Valley in 2002 (Creamer et al., 2007; Ruiz et al., 2008). Testing of 13 sites in both valleys removed any doubt that construction of large pyramidal structures began during the earliest years of the Late Archaic and continued for more than a millennium. Presentation of the research carried out provides context for the chronological data obtained from each site tested in the Fortaleza Valley and contributes to the ongoing discussion of changing complexity in the Andes.

The long history of archaeological research in the Norte Chico began with Max Uhle early in the 20th century. Willey and Corbett (1954) brought attention to the region with their excavations at Aspero and other sites in the Supe Valley, though Aspero was considered an Early Horizon site based on a nearby cemetery (Feldman, 1980). The first awareness that the region as a whole had a significant role in Andean history came with the informal surveys conducted by Paul Kosok and Richard Schaedel in the 1940s and published by Kosok (1965, p. 223). Kosok recognized the large number of stone platform mounds in the region and referred to it as the “Pativilca Complex” of early but unknown age. The importance of the region as a focus of particularly early cultural development increased when Moseley and Willey (1973) recognized that the fishing community of Aspero, in the Supe Valley, dated to the Late Archaic Period (3000–1800 BC, also referred to as the Late Preceramic or Cotton Preceramic; Table 1) and had communally constructed platform mounds. Subsequently, Engel (1987) and Zechenter (1988), also working in the Supe Valley, identified the cluster of sites including Chupacigarro Grande, now known as Caral, and dated them to the Late Archaic. Following on survey by Williams and Merino (1979) in the Supe Valley, Shady (1997, 2003a, 2004) recorded the large early sites and initiated excavations at Caral. Shady’s first dates for Caral (Shady et al., 2001) confirmed the observations of Engel and Zechenter indicating that these large inland sites with monumental architecture indeed dated to the third millennium BC.

More broadly, the coast of Peru was also used as an example in the debate over the origins of complex society from a variety of perspectives. Carneiro (1970) used the coastal valleys of Peru as a case study in his proposal that circumscription, competition, and warfare led to the development of hierarchy in society (see also Daggett, 1987; Wilson, 1987). Moseley (1975, 1992) suggested that the coastal waters of Peru, unusually rich in fish and mollusks, provided the surplus production necessary for the development of social complexity (cf. Raymond, 1981; Wilson, 1981; Quilter, 1992). Haas (1982) applied a cross-cultural perspective, incorporating data from the complex societies of the north coast of Peru in trying to unpack the diverse variables that affect the development of centralized decision making, hierarchies, and social inequality (1982). Using a climate change approach, Sandweiss et al. (1996) proposed a model in which the gradual constriction of the coast through rising sea level increased population density and spurred culture change.

The Proyecto Arqueológico Norte Chico (PANC) was initiated in 2001 to look at the emergence and development of complex societies across the valley boundaries to get a wider regional picture. Engel (1987) carried out informal survey in the Pativilca Valley, and Vega-Centeno et al. (1998) undertook a survey in the Fortaleza Valley associated with the construction of a power line. At the time of these surveys, none of the large sites with monumental architecture in the

Pativilca and Fortaleza valleys were recognized as belonging to the Late Archaic. PANC crews conducted informal reconnaissance in the Huaura, Pativilca, and Fortaleza valleys in 2000, 2001, and 2002 and located a number of sites that were similar to known Late Archaic sites by the general absence of ceramics on the surface or in erosional cuts or by the presence of pyramidal mounds, sunken circular courts, upright stone monoliths or *huancas*, and occasional twined textiles, another hallmark of the Late Archaic (Moseley & Barrett, 1969). Systematic and comprehensive surveys of all three valleys from the coast to where the valleys narrow at the start of the Andean foothills were conducted in 2004–2007 (Nelson & Ruiz, 2005; Perales, 2006, 2007). A total of over 1,500 archaeological sites and over 10,000 separate site occupations were recorded in the course of these surveys (many “sites” in this area were occupied at multiple times in the course of the past 5000 years). Over 30 large sites with various combinations of public and residential architecture were identified in the four valleys of the Norte Chico.

Survey has inherent limits in clarifying the chronological placement of seemingly early sites that lack pottery, as potential variability in settlement patterns is directly relevant to any interpretation of the nature of the Late Archaic occupation (see Creamer et al., 2007). In looking only at surface indications at various sites identified during the informal survey portion of the project, there were clear indications that some had relatively limited and shallow deposits and were likely occupied for relatively short periods of time, while others had deeper and much more extensive deposits indicating longer occupations. Without pottery, it proved difficult to subdivide the 1,200 years of the Late Archaic. We turned to excavation to obtain material for absolute dating to confirm both the placement of the sites within the Late Archaic and their position within the 1,200 years of that period. For this reason, testing at seven sites in the Pativilca Valley was carried out during 2002 (Creamer et al., 2007; Ruiz et al., 2008), and test excavations were conducted at six sites in the Fortaleza Valley in 2003. As mentioned, all were likely Late Archaic occupations based on the presence of large-scale surface architecture and the absence of surface ceramics.

We present the results of testing in 2003 and 2004. The Fortaleza is the northernmost of the valleys that make up the Norte Chico. The river’s source, high in the Andes, follows a steep and narrow canyon until reaching the coastal plain, where the valley widens, and there are swathes of cultivable land on either side. The Fortaleza River usually dries up during the austral winter months of July and August, similar to the Supe River. The Pativilca River carries a generous volume of water year-round (Kosok, 1965). Our area of investigation extended from the coast, where the river empties into the Pacific Ocean at Cerro La Horca, to the settlement of Shaura some 33 km inland. This is the lower valley, the zone of floodplain, and the slopes of the lowest foothills of the Andes. Sites investigated in 2003 included Porvenir, Caballate, Cerro Blanco 1, Cerro Blanco 2, Huaricanga, and Shaura.

In 2003, a sample of 1 × 2-m test pits was excavated at each site. Walls of existing Looter’s Pits were cleared and the profiles recorded, as were some sections of monumental architecture disturbed by construction. In 2004, one of these sites, Caballate, was targeted for more extensive testing. Caballate is one of the largest and best-preserved Late Archaic sites in the Norte Chico and merited additional attention. At

Caballote, more 1×2 test units were excavated as were two larger units of 5×5 m. The latter were designed to expose samples of architecture and will be discussed in a future volume. The results of mapping, test excavations, and clearing of existing looters' pits to obtain samples for radiocarbon dating follow, including the 80 radiocarbon dates obtained from these six sites.

Field Methods

A pattern of large, Late Archaic sites distributed along the valley margins was identified in the Pativilca Valley in 2002 (Haas et al., 2004; Creamer et al., 2007) and appeared to continue in the Fortaleza Valley based on anecdotal information. The present project was undertaken to determine whether the Late Archaic network of sites extended into the Fortaleza Valley or whether the Pativilca Valley was the northern margin of the system. Many sites in the Fortaleza Valley owe their excellent state of preservation to their location above the floodplain on the margins of coastal valleys that cannot be reached with gravity-flow irrigation. This land, called *eriazó*, has remained largely uncultivated for the past 5000 years and is covered with many archaeological sites. For millennia, farmers have lived in this zone, maximizing the availability of land that can be irrigated and cultivated. Today, it is the place where archaeological sites can still be found since most land located on the valley floor has been under cultivation for centuries, and ancient sites have been gradually plowed under. During the 20th century, much of the floodplain was bulldozed flat and crisscrossed by irrigation canals to facilitate large-scale cultivation of crops such as cotton and sugarcane.

The goal of obtaining samples for radiocarbon dating and samples of macrobotanical, pollen, and faunal remains was amply met, and the resulting data are subject to ongoing analyses. Subsequent excavations at Caballote and Huaricanga have yielded data on residential and ceremonial architecture.

The inventory of archaeological sites identified during the project included eight characteristics that were recorded at each: site name, UTM coordinates, altitude, location, description, previous research, time period, and state of preservation. *Names* assigned by Vega-Centeno et al. (1998) were used; in the cases where the site had not been identified previously, we used the names given by local residents to the areas or names of associated geographic features taken from maps of the Instituto Geográfico Militar. Latitude, longitude, and *UTM coordinates* were determined by GPS or from 1:100,000 maps of the Instituto Geográfico Militar. *Altitude* was determined by GPS or topographic maps incorporated into a regional GIS based on readings from Trimble differentially corrected GPS units calibrated to submeter accuracy. *Location* refers to geographic location in relation to nearby towns and cities as well as geographic features and political units, such as district and province. *Descriptions* of sites were made for each architectural unit, including archaeological material on the surface, site layout, and the number of superimposed components that could be identified. *History* included all known previous investigations at the sites visited. *Time period* refers to the chronological position of the site, determined by the material culture visible on the surface and in looted areas,

the architecture, and exposed profiles. *State of preservation* included a preliminary description of the deterioration of the site and areas destroyed by human or natural forces. This information has proved valuable in providing a base condition from which looting, bulldozing, and other destruction can be documented over time.

Site Identification and Excavation Strategy

Each site discussed was identified on historic air photos (1940s and 1969–1970) of the Servicio Aéreo Nacional. Architectural remains of archaeological sites, such as mounds, platforms, sunken courts, walls, and looted areas, could be identified in areas not covered by agricultural fields, roads, or structures. Follow-up ground-truth visits recorded mounds and other features identified on air photos (Table 2), sites where archaeological research had been carried out and sites indicated by local residents. Subsequent literature search revealed that the sites having mounds and circular courts had been identified as belonging to either the Initial Period (1800–1000 BC) or the Early Horizon (1000–300 BC; Vega-Centeno et al., 1998). An additional site, Cerro de la Cruz (Vega-Centeno et al., 1998), was not identified on the ground in time to be included in the testing program. Detailed survey of the region was not completed until 2007 (Perales, 2007).

Due to their large size, most sites were subdivided into sectors around specific mounds, though sectors also included areas of obvious occupation, disturbance, or cemetery debris without mounds. These were established before the sites were mapped, and as a result, lettered sectors vary a great deal in size, especially those not centered on a structure. Sectors centered on structures were not set up with boundaries during the 2002–2003 field seasons. Starting in 2004, the ad hoc nature of sectors proved cumbersome and was replaced with site units of 100×100 m based on UTM measurements. Site maps show both the grid and sectors as used during the field work.

During 2002–2003, a small number of test units were excavated each season, and each of these was numbered separately. At Caballote in 2003, for example, only two test units were excavated: Sector B, Test Unit 1, and Sector C, Test Unit 2. However, in 2004, Test Units A–F were also excavated at Caballote, resulting in two test units: numbers “1” and “2.” In addition to identifying location by 100×100 -m units, subsequent excavations at Caballote and at Huaricanga identified excavations at “operations” in different parts of the site. Each operation was identified by a roman numeral, and all excavation units were identified within the operation. A set of inventory numbers were assigned to each operation (e.g., 5000–6000) to avoid overlap in inventory numbers from different operations. The excavations described in this volume use the “sector” and “test unit” designations used in the field during the 2003–2004 field seasons, even though the sectorization of the site around mounds was not used subsequently.

At the sites tested in 2003, samples of charcoal and annual plant material for radiocarbon dating were collected in two ways. In site after site in the Fortaleza Valley, we encountered exposed profiles remaining from the activities of looters or modern construction activity, and we were able to take advantage of these areas to collect data. By examining profiles already exposed by looting or construction, we were able to collect samples from deep within some mounds, places that

could never have been reached by test pits. Construction in all but one of the sites tested in the Fortaleza Valley used *shicra*, woven bags filled with stone and used in mound construction, somewhat like a sandbag (Quilter, 1985). The arid climate has preserved these bags and provides an excellent source of annual plant remains that are suitable for radiocarbon dating (Shady et al., 2001; Creamer et al., 2007).

In each of the disturbed areas selected, the loose earth was cleared from the face of the damaged area, and a vertical face was created by troweling that exposed an undamaged surface. After the profile was photographed and drawn, samples for radiocarbon dating were extracted from the profile. Care was taken to ensure that the samples included organic material that had not been exposed to the elements. In addition to *shicra* bags, plant fiber was often mixed in with clay to create floors. Some samples for dating were extracted from the fiber temper in floor fragments.

Test pits were also used to obtain samples in areas that remain undamaged, situated to sample deposits of stratified trash. This strategy was used to maximize the number of samples that could be collected from each test pit and to sample as much of the occupation sequence of each site as possible. Test pit locations were selected after examination of erosion channels, looters' pits, or other disturbed areas and through the use of a handheld soil tester to obtain samples. Each test pit was excavated using artificial or natural levels depending on the context. When natural layers were identified, they were used to guide excavation. When natural layers could not be observed or were more than 30 cm thick, arbitrary levels of approximately 15 cm were used. In general, most test pits were excavated using arbitrary levels, though levels were correlated with natural features. For example, a level was ended when a use surface or floor was identified. This method maximized control of vertical provenience, valuable in contexts lacking architecture, such as midden deposits. Most radiocarbon samples and all of the samples that have been processed for dates were collected in situ. All excavated material was screened through ¼-inch screen and a portion was also screened through 1/8-inch screen. Two-liter soil samples were collected for flotation and fine screening (2 mm), and pollen samples were also collected. Excavation focused on retrieving samples of flora, fauna, and artifacts from stratified deposits along with radiocarbon samples. No effort was made to clear architectural features or to identify individual structures or burials.

Mapping

Boundaries for each site were established using several criteria, including the area over which tiny marine shell fragments could be observed on the surface and the surrounding natural features, such as the walls of a dry wash, or *quebrada*. The location of each identified site was initially recorded with a handheld GPS, and the information was transferred to maps at a 1:100,000 scale, obtained from the Instituto Geografico Militar. Detailed maps incorporating 5000–25,000 points were compiled for each of the sites tested, though not all maps were completed by the end of the field testing program in 2003. Maps of the large sites discussed in this volume were mapped with a Topcon 210 total station or a Leica TPS 1200 Robotic total station between 2003 and 2007 and were incorporated with field survey data from the lower

Fortaleza Valley from Chasquitambo to the Pacific Ocean in a GIS completed in 2007 (Perales, 2007). The GIS incorporates satellite imagery and historic air photos in a georeferenced database along with locational data from mapping and regional survey. Thus, all the map information shown here is also part of the GIS.

Radiocarbon Dates: Expressing Calibrated Dates Used in This Volume

Radiocarbon dates provided by a lab are not exact dates. All dates come with a \pm range that for the present group of samples ranges from a low of 40 to a high of 290. In addition, dates within the target range of the project, between 5000 and 2500 radiocarbon years before present (RCYBP), have to be “calibrated” to adjust for differences in the atmospheric carbon over the past 5000 years. All of the dates reported here have been calibrated using the Calib 5.0 program. The Cal BC dates given here are intended solely to provide a convenient average for general comparison. To arrive at these specific dates, we have calculated a weighted average for each. To arrive at this weighted calibrated date, we used the “relative area under probability distribution” at the 95.4% (2σ) confidence interval. The Calib program generally gives between one and four date ranges, each with a given probability. Thus, for example, an RCYBP date of 3770 ± 70 run through Calib emerges with the following at a 95.4 confidence level: 2458–2417 (4.0), 2410–2022 (95.3), and 1992–1983 (0.7). Thus, the probability that the date falls between 2458 and 2417 Cal BC is 4.0%, the probability that it falls between 2410 and 2022 Cal BC is 95.3%, and the probability that it falls between 1992 and 1983 Cal BC is 0.7%. To arrive at a weighted average, one that includes all the probabilities, an average for each of these ranges is calculated $[(2458 + 2417)/2 = 2437.5]$. This average is then multiplied by the probability, in this case 4.0%, to arrive at a weighted contribution of 98 years. The contribution for the range 2410–2022 = 2112 years, and that for the range 1992–1983 = 14 years. The weighted contributions are totaled $98 + 2112 + 14 = 2224$, rounded to the nearest 10 for a weighted average calibrated date of 2220 Cal BC. It must be emphasized that this Cal BC date is only a comparative figure for purposes of broad discussion. It summarizes the probability of an *interval* of time around the weighted average, and is ultimately more indicative of an approximate age of a sample and chronological relationships between samples than RCYBP dates, unweighted averages date, or uncalibrated dates.

Charcoal, Radiocarbon, and Old Wood

One of the advantages of working on the Peruvian coast is that the dry climate preserves organic material. One problem faced in such environments is that of “old wood,” providing misleading early dates (Schiffer, 1986). Residents of the Late Archaic sites in the Norte Chico could have picked up wood from dead trees or broken branches in this desert environment and used it for building construction such as door lintels, as firewood, or in toolmaking. Radiocarbon dating identifies the point when carbon is no longer absorbed by the plant, not when the material was employed. Charcoal from such wood yields dates that older than the hearth where they were collected, just as tools made by carving out the hard center of a tree would yield older dates than wood at the outer edge

growing when the tree was cut down or died. Not *all* charcoal samples will yield “false” early dates. Just as the residents can use old wood for fires, they can also use “new wood” for fires—wood cut from living plants or recently dead plants. New wood would yield dates that *did* reflect the age of the fire though not if from interior wood of long-lived species that can be relatively “old” compared to the exterior of the tree, as mentioned. To alleviate as much of the “old wood” problem as possible, we made an effort to select annual plant fibers (leaves, grasses, reeds, and seeds) when available for radiocarbon dates. These remains survive in the dry environment of the Norte Chico, are abundant at the sites tested, and avoid the issue of internal/external differences in age of wood from long-lived species. However, even annual fibers that present little possibility of being chronologically out of context can yield stratigraphically inconsistent dates. They may reflect material that has been moved or contaminated by the exigencies of everyday life. They also may fall at one end or the other of their respective probability ranges when dated, not conveniently in the middle. Although it is conceivable that some “old” annual plant fiber material might be incorporated into midden material, this is highly unlikely. For making *shicra* bags specifically, weaving the bags requires fresh reeds. Older fibers become brittle and difficult or impossible to weave. Woven reeds deteriorate from exposure to light and humidity and are unlikely to last many years. *Shicra* bags might be exposed during remodeling of structures and could possibly have been reused, but this seems unlikely based on the loss of tensile strength that occurs as reeds dry (Asencios, 2009).

Radiocarbon dating charcoal samples versus annual plant samples may yield systematically different results. In three proveniences at the site of Caballote, pairs of samples were collected, both charcoal and annual plant fiber. In each case, the resulting calibrated dates for charcoal are 300–400 years older than the annual plant fiber samples (Table 3). These data are best considered anecdotal but suggest that further testing is warranted to examine whether annual plant fiber and charcoal samples yield systematic differences in radiocarbon dating results.

Porvenir

Porvenir is located on the right margin of the Fortaleza River, 1.5 km northwest of the village of Lampay and 5 km north of the center of the city of Paramonga. The archaeological site fills the mouth of a dry streambed, 50 m above sea level. It is bounded on either side by rocky extensions that extend south from the hills called “El Porvenir.” Adjacent fields of sugarcane cover terrain between the site and the Fortaleza River that was probably both occupied and cultivated in ancient times.

Porvenir consists of six mounds distributed around a large open space in a U-shaped arrangement of structures that opens toward the river valley to the south-southeast (Fig. 2). The mounds on the east side of the site are widely separated from the main mound some 100 m distant. The intervening area has been heavily washed out, and no indication of structures that may have been located in this part of the site can be seen today.

Two structures at Porvenir are platform mounds with associated sunken circular courts located near the side of the

mound closest to the large central open area or plaza (Fig. 3). The Sector A circular court is heavily damaged. Later visitors to Porvenir used part of the sunken court and the low platform around it for interments, particularly during the Middle Horizon. More than 50% of this zone has been heavily disturbed, and many human bones, ceramics, textiles, and other burial items remain on the surface. Looters even constructed lean-to shelters from discarded textiles. Apparently, there were some higher-status tombs in this area, as the disturbance is more than 2 m deep, and four beams more than 5 m long that appear to have been removed from the area were piled off to one side of Mound A in 2004. Later burials were interred in the circular courts of other Late Archaic sites as well (Haas & Creamer, in press). The Sector B circular court, set in a low rectangular platform and clearly visible on the surface, was not subject to similar reuse. Two other cemetery areas are visible at Porvenir, located in the central open area of the site. The presence of ceramics in the looted materials in all these cemetery areas indicates that they postdate the Late Archaic occupation of Porvenir.

An area to the east of Sector A covered with mollusk valves and dispersed fragments of charcoal may be an area of short-term residences. To the east of Sector H are the remains of a rock wall that outlines a trapezoidal area about 50 m across, identified as Sector I. An area of intense looting at Porvenir resulted in a large gouge out of the mound in Sector F. This latter hole was reportedly made with heavy machinery and removed an extensive area within the structure. It is visible in air photos taken in early 1970. Considering the length of time this area has been exposed to the elements, it was a high priority for the 2003 field season to clear a portion of this cut and examine the stratigraphy of the structure. Despite the effects of looting, Porvenir is still among the best-preserved Late Archaic sites in the region since the probable residential areas around the structures are preserved and the site is not under cultivation.

At Porvenir, three 1 × 2-m test units were excavated, and two exposed profiles were recorded. Test Units 1 and 2 were excavated in Sector H in areas that appeared to be residential trash deposits. Profile 1 was an area cleared in the deep looted section of Sector F. Test Unit 3 was excavated in Sector A in an area thought to be residential trash. This unit was specifically targeted to test the hypothesis that scatters of crushed shell, small charcoal fragments, and lithic fragments visible on the surface represent residential areas (Wulffen, 2009). A looters’ pit (Sector A, Profile 2) adjacent to the mound in this sector was also recorded, and samples of *shicra* were collected.

Sector A, Profile 2

Looters excavated a hole approximately 4 m in diameter in a raised area just off the north corner of the main mound at Porvenir. While the main mound was built of quarried stone retaining walls filled with *shicra* bags and loose rock and earth, this area was largely devoid of surface stone. A section of one wall of this pit was cleaned and drawn. The three radiocarbon samples were taken from previously unexposed, in situ deposits with very little chance of contamination (Table 4a–c; Table 5; Fig. 4). The profile of the pit revealed relatively simple stratigraphy with two upper layers of fill separated by a thin clay layer with the outline of a shallow depression. The lower portion of the profile consisted of very dense

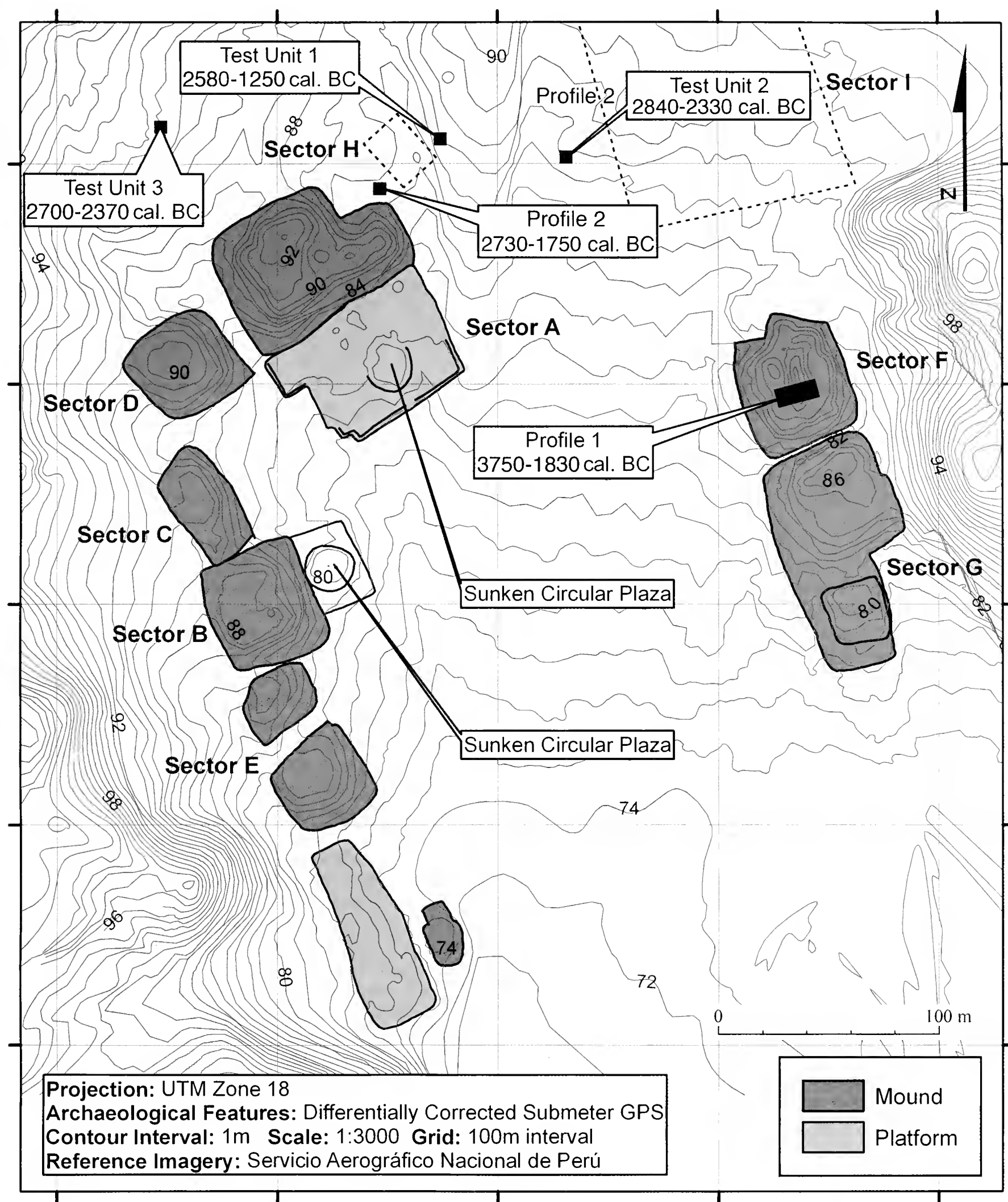


FIG. 2. Ground plan of Porvenir showing sectors and location of excavation units and profiles.

concentrations of *shicra* fibers that may denote an area where *shicra* bags were prepared for construction and use in the adjacent monument. The dates taken from this profile, while internally consistent from top to bottom (Fig. 4a, c), are

unlikely to represent a continuous occupation or use for 1000 years. The most that can be inferred from these disparate dates is that the locality was used during the Late Archaic and may reflect multiple phases of utilization.



FIG. 3. Photographic overview of Porvenir taken from the hills east of the site.

Sector A, Test Unit 3

This sector includes the main mound located at the northern end of the site. The body of the mound is rectangular, though an elevated platform on its east side distorts the overall form, resulting in a kind of L-shaped structure. The surface of the mound is covered with angular rock, with no visible ceramics and with only a few mollusk fragments. The mound measures $86 \times 61 \times 10$ m. As with other sites in the region, the mound was built on a slope so that the front—the side facing into the center of the site—gives an appearance of being taller, though the actual cultural volume of the mound is less than is present in the mound complex in Sector F (see below). A sunken circular court is adjacent to the mound, facing the central open plaza area of the site. The top of the mound is a mass of depressions and raised areas indicating the presence of significant construction of rooms on the top; however, it was not possible to define specific structures.

The north side of the mound shows evidence of a possible residential structure or platform. A deep deposit of midden is visible in the sides of a nearby looters' pit, and while abundant botanical remains can be seen, no pottery was visible. Excavation in Sector A was confined to a single unit, Test Unit 3, though some comparison can be made with Profile 2. Dates were obtained from the lower levels of both units. In Test Unit 3, one sample was obtained from plant fiber incorporated into a clay use surface, and a second sample came from fill overlying the clay surface. The dates 2370 and 2700 Cal BC (Table 4d, e; Table 6), fall into the middle of the third millennium BC. In Test Unit 3 as in Profile 2, an upper layer of fill consisting of earth, rock, shell, and cultural materials was identified over a use surface, with a second layer of fill below the occupied layer (Fig. 5). Below both layers of fill was evidence of construction that yielded the dates in each test unit. In Profile 2, the construction was a solid layer of *shicra* fill associated with construction of a terrace or platform, while in Test Unit 3, the deposits consist of several layers, including two of clay that are floors or use surfaces. It seems that these two parts of Sector A were initially occupied about the same time, around 2700 BC, with use continuing in

the Test Unit 3 area for an undefined length of time after the period of the dated samples. Use eventually ceased in both places, though we cannot determine whether this was a sitewide abandonment or a shift to a different sector of the site. There is also evidence of reuse of this area at a later time. No date is associated with this later period of use in Test Unit 3, while later use of the area shown in Profile 2 was dated 1750 Cal BC and is associated with the Phase II fill (Profile 2; Fig. 4a), suggesting the later occupation dated to the beginning of the Initial Period (1800–900 BC).

Sectors B–E

Sectors B–E were not subject to testing. Together, these structures make up the western arm of the site. Sector D appears to be aligned with the largest mound, Sector A, while Sectors B, C, and E are similarly aligned, forming one “arm” of the site. The circular court in Sector B suggests that there was a very specific focus in this part of the site, but its use in relation to the larger Sector A circular court remains to be established.

Sector B includes a rectangular mound $55 \times 49 \times 8$ m. Sector B is adjacent to and south of Sector C. The surface is covered in angular rock with mollusk fragments dispersed over the entire surface. The central part of the mound shows a central atrium, and a depression is bordered with rock indicating its original rectangular shape. A staircase connected the atrium with the clearly visible sunken circular court 23 m in diameter, set inside a rectangular, raised platform at the foot of the mound.

Located between Sectors B and D, Sector C includes a rectangular mound $51 \times 29 \times 5$ m. The surface of the mound is covered with angular rock and a very few river cobbles. On the mound surface, the upper edges of several rock walls are visible that are probably the remains of structures built atop the mound.

Sector D is located north of Sector C and west of Sector A and includes a rectangular mound $47 \times 45 \times 7$ m, with steeply sloping sides covered with angular rock and mollusk fragments but with no ceramics on the surface. The alignment of the structure makes it appear to be more closely associated with the main mound in Sector A than with the mounds in

PANC – 2003
 Porvenir
 Sector A
 Profile 2

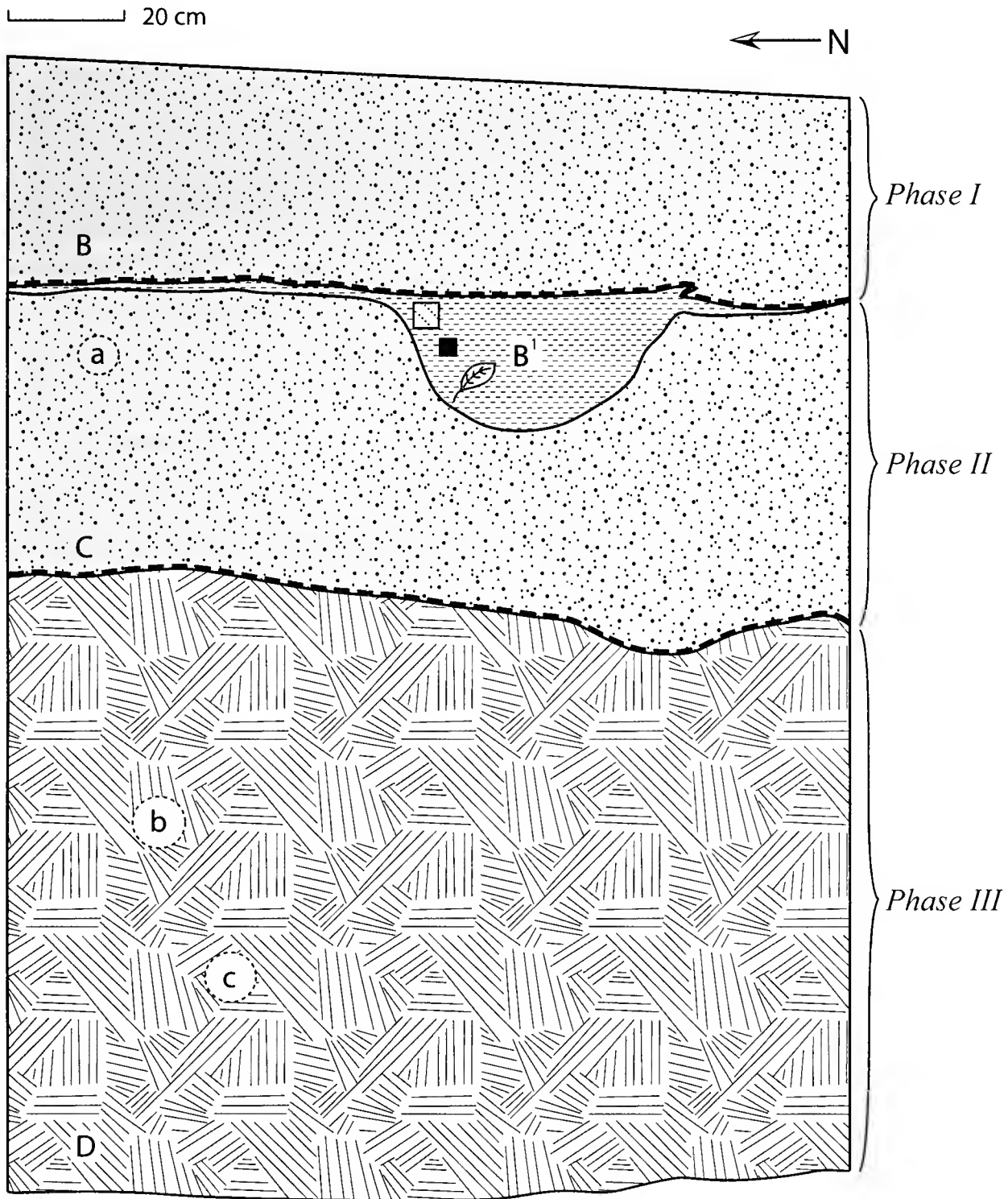
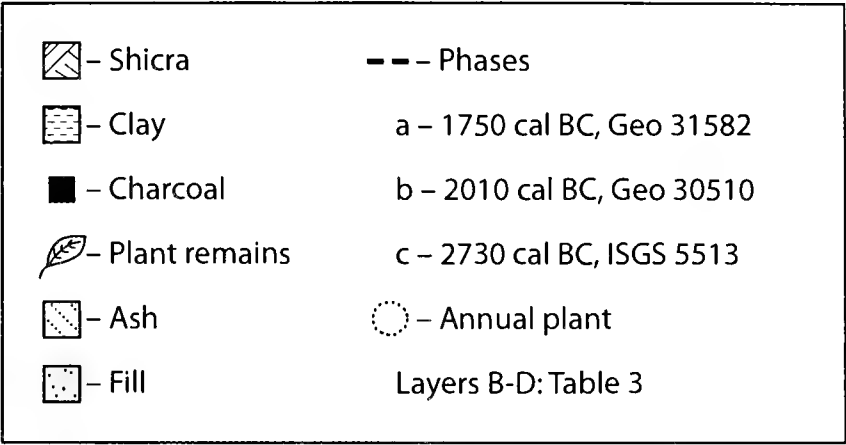


FIG. 4. Sector A, Profile 2, at Porvenir, profile of looters' pit showing depositional layers and the location of dated carbon samples.

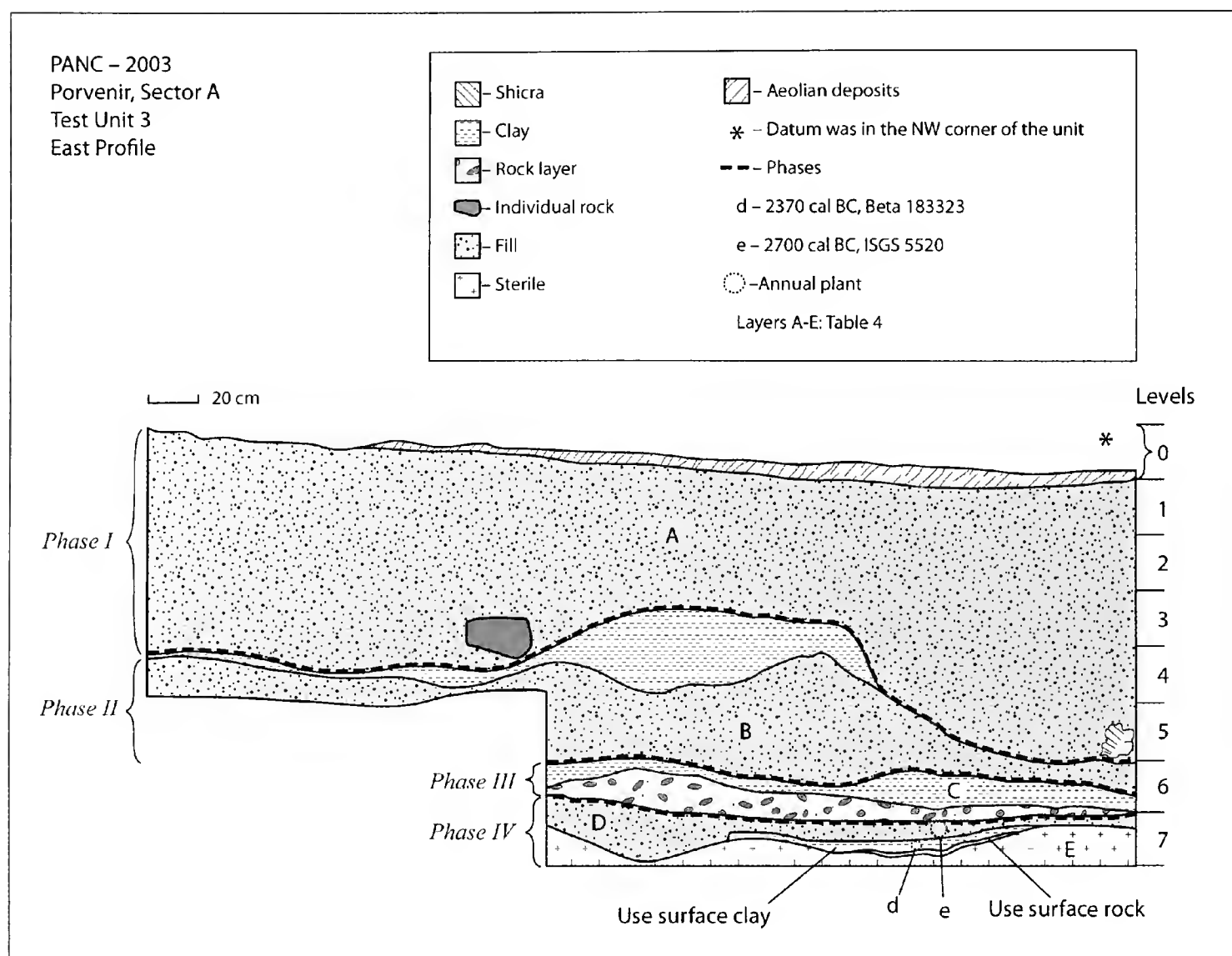


FIG. 5. Profile of Test Pit 3, Sector A, Porvenir, showing levels and layers.

Sectors B, C, and E. The Sector D mound shares a similar orientation with the other mounds, however, and suggests a U-shaped layout for the site as a whole.

At the southeast corner of the site is Sector E, consisting of two low rectangular mounds. The north mound is an irregular shape covering $33 \times 28 \times 4$ m and the south mound is rectangular, $43 \times 41 \times 6$ m. The two structures are separated by some 12 m. The surface of each is covered with angular rock, fragments of mollusk valves, and a few ceramic fragments. The area has been used by herders and is covered with caprine feces. Despite this, some wall segments of rock with clay mortar are visible on the surface. The mounds in Sector E are approximately aligned with those in Sectors B and C, creating a row of structures.

Sector F

On the east side of Porvenir, Sector F includes a rectangular structure 61×49 m in size that is 10 m high. All sides of the mound are steeply sloping, covered with angular rock and mollusk fragments. The extensive digging through the north side into the center of the mound covers an area 25 m long \times 5 m deep and is visible on aerial photographs from 1970. The sides of this hole are heavily eroded and architectural detail is not visible. No fragments of ceramics could be seen. Profile 1 explored this deep cut in 2003.

Profile 1, Sector F

Profile 1 covered 8.5×3 m and provides a unique view into the interior of a large mound, showing a series of construction

events undertaken on the mound in Sector F. The five radiocarbon dates from Profile 1 range from 3750 to 1830 Cal BC (Table 4f–j; Table 7) and suggest a long occupation history at Porvenir throughout the Late Archaic Period. Given the association of the very early date of 3750 Cal BC with fill below a floor near the summit of the structure, it seems likely that this date is not reflective of that construction event. It is, however, well within the range of dates from other excavations at other Late Archaic sites (see the discussion of radiocarbon dating below). The date of 1830 Cal BC yielded by sample “f” (Fig. 6) may also be from disturbed material, given its association with two other samples that are earlier, samples “g” (2100 Cal BC) and “i” (2440 Cal BC). The profile was cleared in a disturbed area that despite its size did not reach the base deposits of the structure. It is likely that at least one earlier occupation phase remains to be identified in this Sector F mound. The most consistent dates from this structure range on average from 2440 to 2100 Cal BC, suggesting a period when the structure was being built and remodeled. Clearing in this area revealed several construction episodes that consisted of wall construction, layers of floor plaster, and clay floors (Fig. 6; Table 7, Layers B–J). There are several ways to envision the walls and floors in estimating the construction phases for this area. Overall, the portion of the profile where architectural remains could be detected suggests a minimum of three construction phases of walls and plastered floors that were covered by later construction. The uppermost deposit that could be identified was a pair of clay floors (Fig. 6, Floor 1).

This profile at Porvenir illustrates the way in which mounds increased in size with the addition of retention walls that were

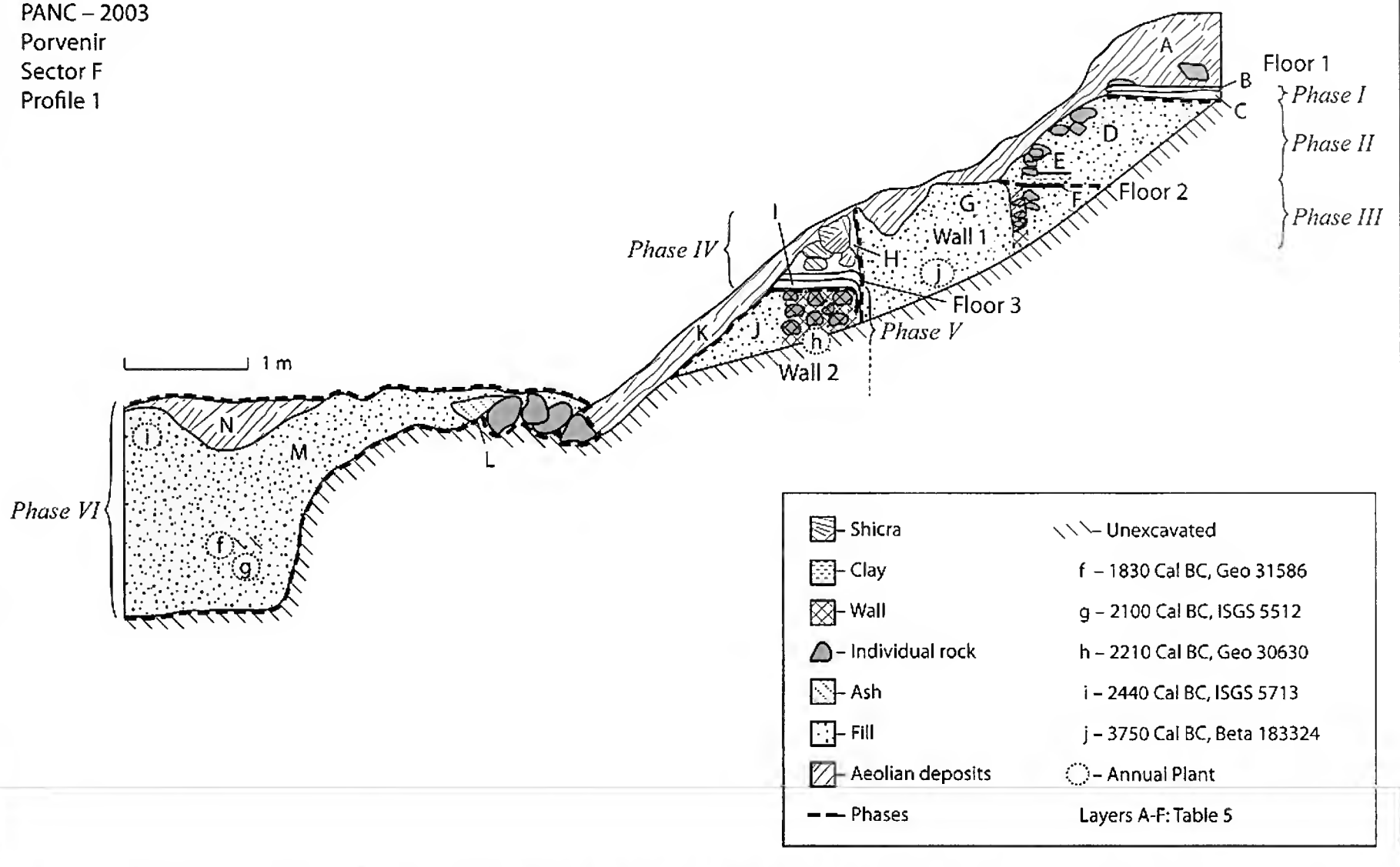


FIG. 6. Sector F, Profile 1, at Porvenir.

filled using *shicra* bags and then covered with a layer of clay plaster. Mounds were modified to accommodate a range of activities that probably changed over time. The changes in architecture within the mound show a large investment in labor and complex organization to make it possible to redefine spaces on different structures. Deposits below Wall 2 in the profile are homogeneous and suggest that there was at least one major period of construction that raised the mound substantially in a single episode. The profile does not reach submound deposits, however, and does not show whether this episode was the initial construction effort. The profile above Wall 2 shows several different construction events that show that the mound was remodeled or expanded on numerous occasions, gradually increasing its size. Although every mound at Porvenir and elsewhere is going to have a unique architectural history, the profile of the Sector F mound demonstrates the variability in deposits that is hidden beneath the modern surfaces of these structures.

Sector G

Immediately south of the mound in Sector F is Sector G, in which there is a mound similar in orientation and dimensions to that in Sector F, $102 \times 59 \times 8$ m, though the mound in Sector G is slightly lower. The surface of the mound in Sector G is covered with angular rock and mollusk fragments but no ceramics. South-southeast of the mound in Sector G are structures of adobe bricks, with ceramics visible on the surface and visible looting disturbance. No testing was conducted in Sector G.

Sectors F and G are aligned parallel to Sectors B–D at a distance of 230 m. Together these two sets of mounds create two parallel “arms” of the site layout in the form of a U. A *hualico*, or flash flood, removed approximately 25% of the site from where Sectors A and I meet on the north, across the site center and through the south end of Porvenir. This flooding could have removed additional mounds oriented similarly to the mound in Sector D or in the area noted as Sector I that would make the U-shape layout more distinct as well as other structures in its path. We did not find evidence of such structures during the limited testing program carried out.

Sector H

In the northeast corner of the site, Sector H includes an area of approximately 50×30 m on the surface where a concentration of mollusk valves and dark-colored earth is visible, suggesting an area with deposits of botanical material in midden. The level surface may indicate a residential area, though Sector H falls within the washed-out zone. The area was selected for testing, as it was near the main mound of Sector A and offered the possibility of high-status residences or trash. Two test units were excavated in this area. In addition, Profile 2 in Sector A mentioned above is located near Test Unit 1 in Sector H.

Sector H, Test Unit 1 and Test Unit 2

Test Unit 1 revealed a low wall topped with a layer of clay, identified as a retaining wall that was part of a low platform

PANC – 2003
 Porvenir, Sector H
 Test Unit 1
 North Profile

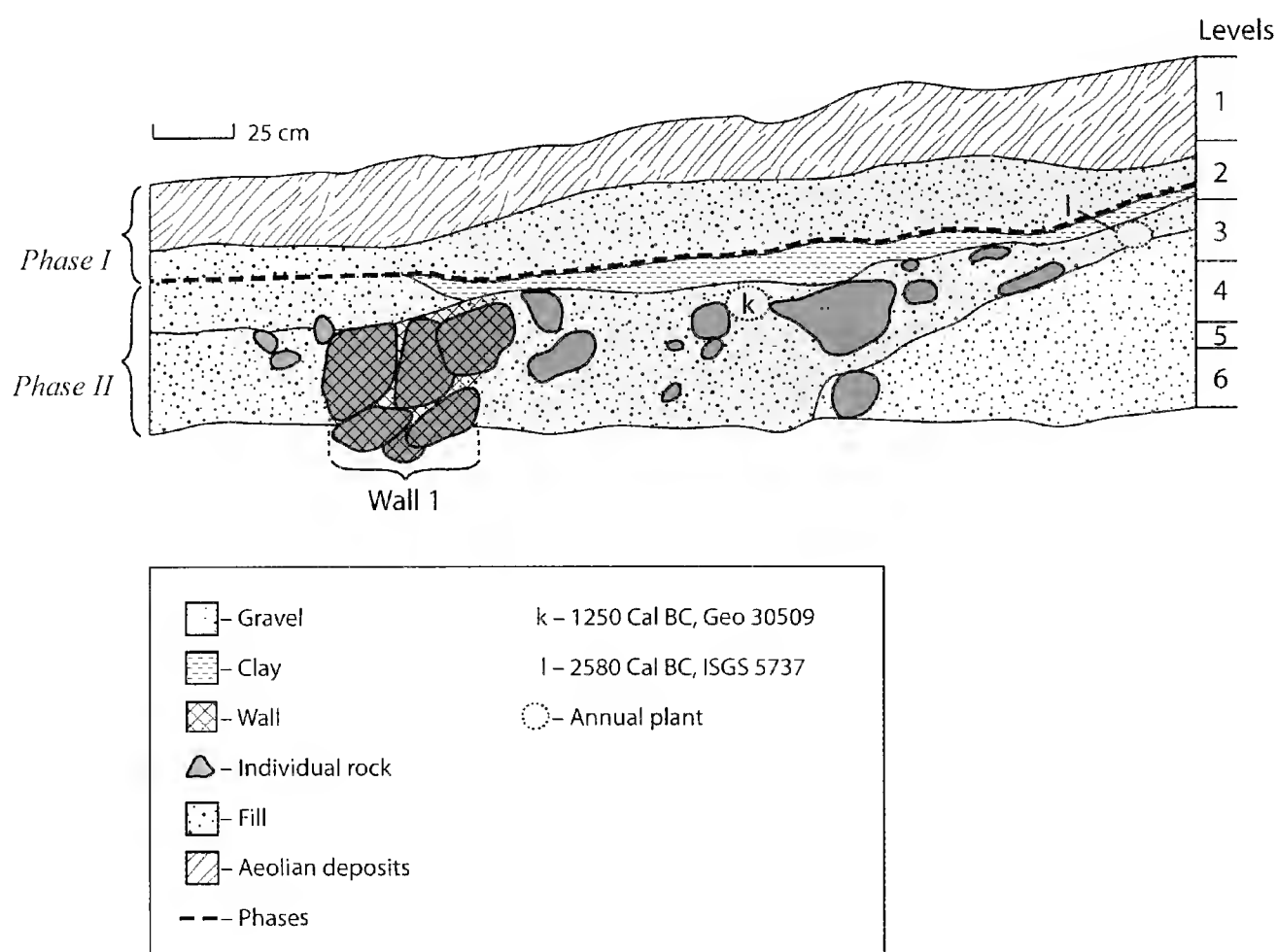


FIG. 7. Porvenir Sector H, Test Unit 1.

(Fig. 7). Samples yielded two dates (Table 4k, l; Table 8). A *shicra* fragment from construction fill behind the retaining wall provided a date of 2580 Cal BC (Table 4l) and suggests a Late Archaic date for this feature. The later date, 1250 Cal BC (Table 4k), is from plant fibers collected from a similar context but not clearly part of a *shicra* bag. This could indicate later remodeling or even a later date of use. It is also possible that these fibers were out of place, fallen from above or somehow contaminated. Alternatively, the older date could be in error, and the platform may date to the Initial Period. When compared to the dated units in Sector A, the older date from Test Unit 1 and the lower deposits from the Profile 2 and Test Unit 3 in Sector A all date to the mid-third millennium BC and seem to indicate a period when the site was in use and construction was under way.

Test Unit 2 (Table 9) in Sector H was situated at the east edge of a road that crosses the site of Porvenir, a locality chosen for testing when an animal burrow nearby revealed deep ancient trash, including shell, ash, and lithic fragments (Fig. 8). The depth of the cultural deposits in Test Unit 2 reached almost 2 m. Unlike most of Sector H, Test Unit 2 is on a slightly raised area that was not visibly affected by the extensive washout across this part of Porvenir.

A number of artificial levels were used to partition the deposits in Test Unit 2, and these were grouped into with four phases, or periods, of use. During the earliest phase (IV), rock and earth were deposited in this area, possibly associated with clearing or construction nearby. Subsequently, during Phase

III, this area was used as a midden. It was at this time that deposits included ash and food remains, forming the very dark layer visible during excavation. The midden was not homogeneous throughout and included a layer of large rock. Trash disposal here eventually ceased, as indicated by the formation of a use surface atop the dark midden at the end of Phase III. Wall 1 was built on that surface, part of Phase II activities, and formed the side of a platform about 50 cm high (Fig. 8). The wall and platform were built on top of the midden and did not intrude into it. As in Test Unit 1, this platform could have been the base for residential structures, or it could be related to ceremonial activities carried out on the nearby mound in Sector A.

Wall 1 was excavated as a single provenience, Level 12. A sample of charcoal from the wall yielded a date of 2840 Cal BC (Fig. 8; Table 4n). Since this wall segment crossed the center of the unit, it is visible only in Figure 9. Subsequent Phase II deposits include fill behind the retaining wall and deposits after the platform was no longer in use, including layers filled with earth and large rock and, above that, *shicra*. These may be partly from the collapse of structures built on the low platform, though no indications of structures were encountered in this test unit. The *shicra* sample in Level 5 dated 2330 Cal BC corresponds to the top of the Phase II deposits. This *shicra* bag was distinctive in size and shape but was surrounded by fragments of *shicra* and loose plant fibers rather than other whole bags, suggesting that it could have fallen from its original context (Table 4m). Test Unit 2 shows

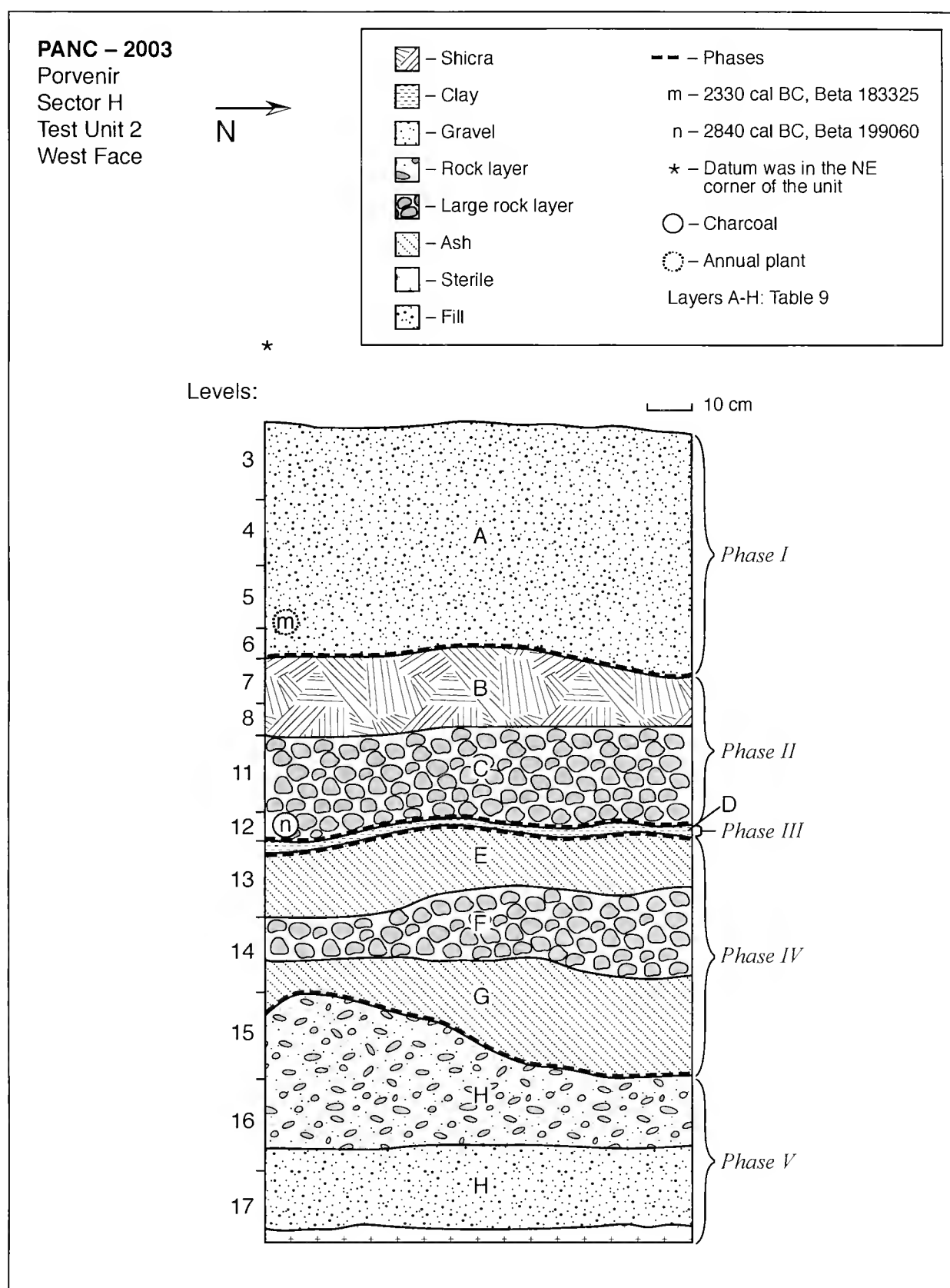


FIG. 8. Porvenir Sector H, Test Unit 2, west face.

two phases of use of the area as a midden, once before the platform was built (Phase III) and later after the platform was no longer in use (Phase I). The span of dates associated with Test Unit 2 suggests active use of this area during the early to mid-third millennium BC, similar to the other areas tested. Earlier deposits may be present, but a date is not associated with the lowest levels excavated in this unit.

Sector I

Sector I is located east of Sector H and includes a rectangular area outlined by a wall of rock and clay. The wall is now in fragments, a few of which remain to indicate its orientation. Air photos of the region taken in 1970 show the wall in a more complete state. The wall is oriented similarly to the mounds at the site, though its age could not be determined. No testing was done in Sector I.

Porvenir Discussion

Three 1 × 2-m test units were excavated at the site and the two looters' pits cleared, encompassing three different sectors of the site. Together these indicate the location of midden and areas of buried architecture within the site. Each test unit identified deposits more than 1 m deep and yielded dates spanning the Late Archaic Period as well as slightly earlier and later periods.

The 13 radiocarbon dates obtained from Porvenir range from 3750 to 1250 Cal BC. Comparing the dated phases (Table 4), it is apparent that all the tested areas were occupied during the Late Archaic between 3000 and 1800 BC. Eleven of the dates fall within a relatively continuous and overlapping cluster between about 2840 and 1750 Cal BC (Table 4), suggesting principal use of Porvenir during this interval.



FIG. 9. In Sector H Test Unit 2, Porvenir, the corner of a retaining wall, part of a low platform, was uncovered. Packets of folded willow branches were associated with the edge of the platform.

The oldest date, 3750 Cal BC from Phase IV of Profile 1 (Fig. 6j), appears to be an outlier but could be a valid date. The sample was annual plant fiber removed from a fragment of clay plaster coating Wall 1 within the mound construction. If accurate, this would suggest that the earliest construction at Porvenir began well before 3000 Cal BC, though more testing would be needed to determine whether such an early construction date is reliable.

The most recent date from Porvenir, 1250 Cal BC from mixed plant fiber in Sector H, Test Unit 1 (Fig. 7k), may be accurate and indicate use of this area during the late Initial Period, or it could indicate contamination in the fiber sample. The other date from Sector H, Test Unit 1, is from a *shicra* sample, yielding a date of 2580 Cal BC (Fig. 7l), less likely to inadvertently have been mixed with other fibers. It is impossible to draw any conclusions about the oldest and youngest dates based on these two isolated dates alone. The units tested show different aspects of site construction and occupation. The looters' pits in Sectors A and F show mound construction. The profile cleared in the Sector A looters' pit revealed only a single mound construction episode, while the Sector F profile includes evidence of several different modifications. Although it is now certain that Porvenir dates to the Late Archaic Period, it will take additional excavation to determine when the earliest construction at the site took place and the sequence or contemporaneity of the numerous construction events identified in the excavations.

Similarly, Test Unit 1 and Test Unit 2 in Sector H reveal the use of midden to level uneven or sloping ground surfaces. In each of these places, the test units also uncovered low platforms that were built on the leveled surfaces. Test Unit 1 showed a single floor layer on the constructed platform while in Sector A, Test Unit 3 showed repeated construction of use surfaces associated with a low platform. Test Unit 2 shows greater accumulation of debris. The platform was built after use of the area as midden to a depth of about a meter. This area may have been residential, though the volume of plant remains, string, rope, and mat fragments suggests a weaving workshop. Alternatively, the platform may have been an activity area that

later expanded as debris from weaving accumulated. The platform was later covered by rock and then dense concentrations of partial *shicra* bags, *junco* (*Graminea Schoenoplectus sp.*) used for making *shicra* bags, and other plant fibers. These may indicate its use as a workshop for using wild cane, junco, and cotton in making string, rope, mats, and *shicra* bags, all of which were found in abundance. Employing limited excavations, at Porvenir, it was possible to demonstrate the presence of mound construction and remodeling, repeated creation of use surfaces and their occupation accompanied by midden deposits, and specialized activities, such as weaving, all during the third millennium BC.

Caballote

Caballote is located on the right (north) bank of the Fortaleza River, 9 km north-northeast of the center of the city of Paramonga, at approximately 150 m above sea level. The site fills the mouth of a wide, dry wash bounded by hills that extend southeast from the chain of hills noted as "La Empedrada" on national maps. Caballote consists of six mounds arranged around a large open space (Fig. 10). Indications of occupation in the Caballote locality extend over an area of approximately 400 ha. The site also had a very long and complex occupation (Haas et al., 2010). A large piece of the site was plowed and laced with canals for an irrigation project in the 1970s, but the project ultimately failed; no water ever passed through the irrigation system. Plowing uncovered patches of marine shell, ash, and burned rocks, indicating numerous and extensive areas of pit hearths and cooking. Most of the site, including mounds and surface architecture, remains intact. In the southwest corner of the site is a looted cemetery area where human remains and ceramic fragments are dispersed across the surface. Three of the mounds are associated with sunken circular courts. The space the site occupies, its dimensions, and the architecture of the site suggest that it was among the most important of the preceramic sites in the Norte Chico region. Caballote was divided into sectors around each of the mounds. Subsequently, the site was subdivided into 100 × 100-m units incorporated into the GIS. The sectors are described below and are indicated on the site map along with the 100 × 100-m units (Fig. 11).

Sector A

Sector A includes the principal mound of the site and is located at the south end of the site, near the edge of an alluvial platform that forms the base of the La Empedrada wash. The Sector A mound is rectangular and measures 125 × 54 m and is approximately 17 m high (Table 2). Adjacent is a circular court 15 m in diameter, outlined by *huancas* (see Fig. 46). The axis of the stairway on the face of the mound bisects the court, although the court is not visibly sunken like the others at Caballote.

The surface of the mound includes areas of quarried angular rock and others of fine-textured grayish-tan sediment mixed with sand and fragments of rock. A small number of marine shell fragments are visible on the surface. A broad atrium is visible at the top of the mound that faces the circular court of *huancas*. The northwest portion of the mound looks different



FIG. 10. Overview photo of Caballete taken from the hills west of the site.

and appears to have been constructed as an addition at a different time than the bulk of the mound. Less rock is visible on the surface in the northwest portion than elsewhere (Fig. 10). Flanking platforms at either end of the mound can also be identified, each covered with rock alignments, the foundations of rooms constructed there. Large blocks of stone outline the base of the mound, most clearly visible on the south side of the mound facing the valley, away from the sunken court. These blocks tend to be naturally rectangular in shape, and many have polished faces. There is no evidence that these stones were cut to shape or modified beyond polishing. There are remnants of this stone outline, however, on all sides of the mound.

Sector A, Test Unit 4—2004

This unit was located on an area that was slightly elevated compared to the surrounding terrain, a few meters north of the west wing of the main mound in Sector A (Fig. 12). The area appeared to be comparable to the locations of Test Pits 1 and 2, excavated in 2003, and which proved to have deep stratified deposits.

The stratigraphy of this deep test unit reveals a complex depositional history (Table 10). Near the surface in Level 4 is a possible flood deposit that would appear to date long after the abandonment of the site. More than a meter below the surface, Wall 1 marks the corner of a platform (Fig. 13; Fig. 14) and shows that structures at Caballete may be completely invisible on the surface. Dates obtained from deposits associated with the floors built against Wall 1 include 2730 and 2390 Cal BC (Table 11a, b). A date of 2220 Cal BC comes from a sample from the base of Level 15, along a former ground surface (Table 11c). Samples from a pit feature filled with midden yielded dates of 2700 and 2320 Cal BC (Table 11f, g). Two samples from the base of Level 17 outside the pit feature yielded dates of 2300 and 1890 Cal BC (Table 11d, e). The dates from the pit fill overlap with one sample from Level 17. It is possible that those three—samples e, f, and g—come from material of similar age since Level 17 was composed largely of

fine gravel without artifacts of any kind and there were irregularities in the surface in addition to the pit that yielded similarly dark-colored material.

Test Unit 4 yielded two early dates, 2730 Cal BC from Level 10 and 2700 Cal BC from the pit fill at the base of the unit (Table 11b, g); the most recent date from this unit is 1890 Cal BC (Table 11d). These dates show occupation in this part of the site throughout the Late Archaic Period. The dates do not fall in chronological order according to excavated stratigraphy. In every case, it is possible that botanical material could have been disturbed in ways that affected the positioning of the samples of different dates. As discussed previously (see “Charcoal, Radiocarbon, and Old Wood” above), annual plant fibers made into *shicra* bags are unlikely to demonstrate the “old wood” problem, leaving the question of positioning and date as areas for further examination.

Test Unit 4 shows that this part the site was in use from 2700 to 1890 Cal BC, and occupation in this locality is divided into five phases of activity (Table 11). Two of these, Phases IV and III, are distinctive. Phase IV includes use of the area for trash disposal with a large component of midden debris and dark-colored ash, in use from 2730 to 2200 Cal BC (Fig. 10c–g). A pit excavated into the gravel below the occupied surface at the base of the unit contained a large bundle of stems and leaves of willow twisted into small packets (Fig. 14) that may represent an offering.

Phase III represents a change in use of this area, indicated by the clay floors constructed over the midden deposits at the top of Layer E at the end of Phase IV. Wall 1 was then built as a retaining wall and marks further Phase III use. The associated platform and floors make up a separate phase when this area was an occupied platform and not a trash disposal area. Phase III dates are 2730 and 2390 Cal BC, associated with Wall 1. The date of 2730 Cal BC is from plant material that could represent older material used as fill. The date of 2400 Cal BC comes from a *shicra* bag, probably an accurate date of construction of the platform, because *shicra* bags have to be woven of reeds while they are freshly cut and

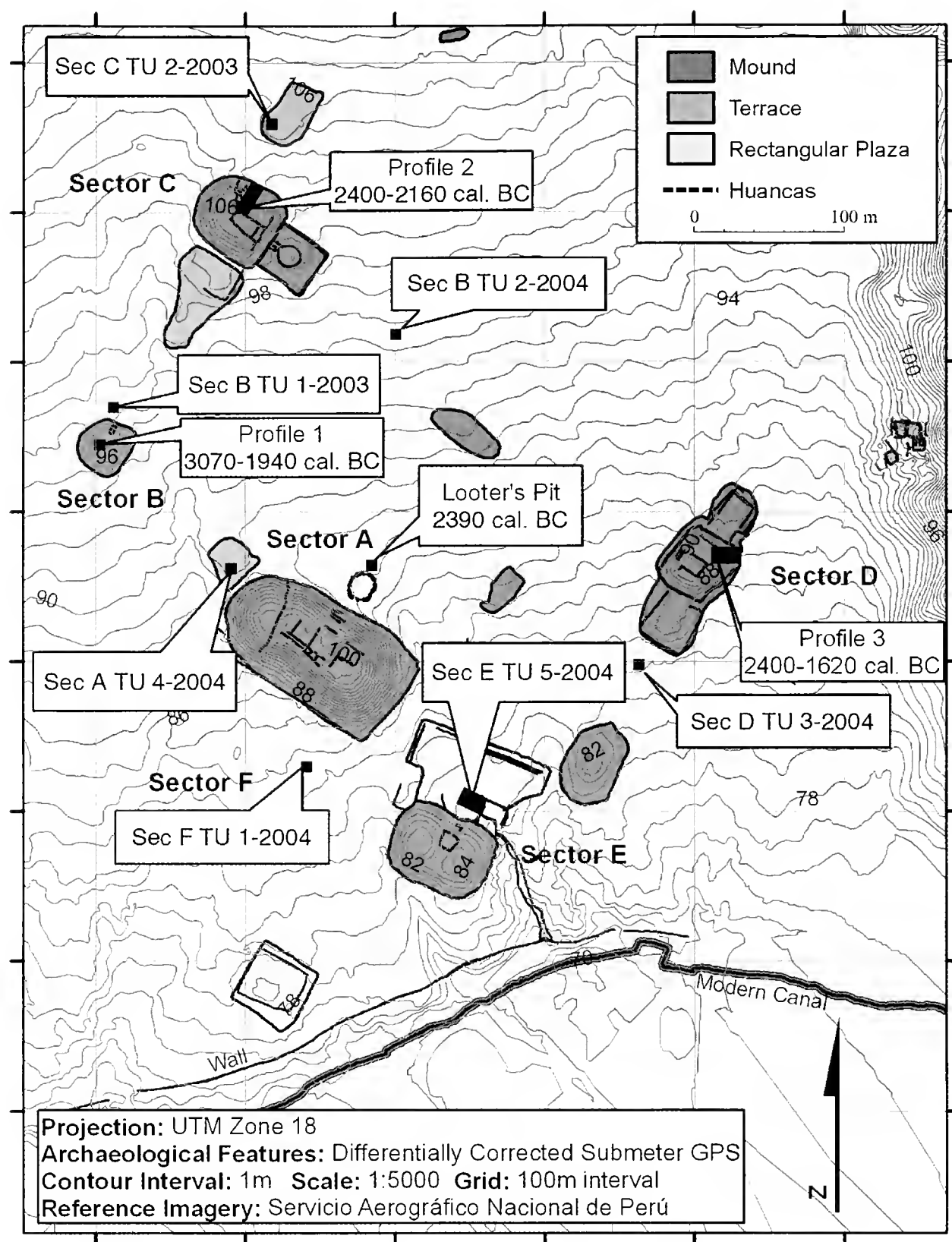


FIG. 11. Map of Caballote showing sectors, structures, and excavation units.

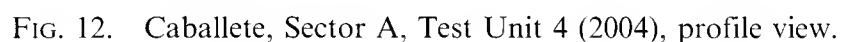
pliable, filled immediately as part of the construction process. Dried reeds are not pliable enough to weave into the bags, and dry bags filled with stones or gravel would break when lifted. Platform construction often incorporates layers of *shicra* alternating with construction debris (see Haas and Creamer, 2006; Stanish, 2006).

The dates of 2220 and 1890 Cal BC (Table 11c, d) demonstrate some of the problems with expressing radiocarbon dates. In the case of Sample 11c with a weighted calibration date of 2220 Cal BC, there is a 95.4% probability that the sample dates to the period 2410–2022 Cal BC, while Sample 10d has a 95.4% probability of dating to the period 2036–1738 Cal BC. The calibrated dates give an approximation of actual age while the date ranges overlap, meaning that despite the differences in their weighted calibration dates, they could come from samples of similar age.

Table 11 ends with a graphic representation of all the dates from Test Unit A with their respective ranges. The maximum

overlap in dates occurs between approximately 2500 and 2150 Cal BC. The dates for this test unit illustrate how difficult it is to use beta-counted (non-AMS) radiocarbon dates to gain detailed information about the specific chronology of a stratigraphic sequence since older calculated radiocarbon dates may overlie younger results (see “Stratification and Radiocarbon Dates” below).

The most recent date in Test Unit 4, 1890 Cal BC, may be out of place or contaminated. If the extremes, the oldest and most recent dates, are not reliable, then the entire pit represents relatively rapid accumulation of debris associated with construction and occupation over the course of about two centuries from 2400 to 2200 Cal BC. If the outliers do reflect extreme ranges of occupation, then construction was spread over about 800 years from 2730 to 1890 Cal BC. The data from this test pit show that for at least two centuries (and possibly much longer), there was construction involving walls, floors, and platforms as well as periods with frequent deposition of trash in this part of Caballote.



Sector B is located at the west side of Caballote and includes a rectangular mound 41×39 m at the base and 5 m high. The surface of the mound in this sector was covered with soil and angular rock, though there was less surface rock in Sector B than elsewhere. Only a few mollusk fragments were visible on the surface. The upper surface of the mound was perforated by three looters' holes, and along the northern margin of the mound was a trench made by looters. The deepest of the looters' holes extended more than 3 m into the mound. In it, a stone wall finished with a coat of plaster could be seen that had been covered over by a thick layer of construction fill. The deepest level of fill included large angular rocks. This material in turn was covered by a layer of *shicra* and finally by another

Sector B, Profile 1—2003

At the top of the mound in Sector B is a pit just over 2 m deep resulting from the work of looters. The walls of this hole reveal multiple phases of building, including the exterior wall of a lower room and a portion of an upper room and a series of floors and use surfaces. The walls of this hole were cleared, and stratigraphic profiles were drawn (Table 12; Fig. 15).



FIG. 13. Caballote, rock wall forming edge of platform in Sector A, Test Unit 4 (Wall 1).

The upper portion of this looted area revealed clay floors interspersed with construction fill composed of stone from collapsed room walls, fragments of clay mortar, shell, and botanical materials. These were not well preserved, though the materials indicate a series of clay floors that were built on top of each other, examples of remodeling and intensive use. A date of 1940 Cal BC was obtained from a *shicra* bag collected just below the series of at least three floors that form the upper surface included in Phase II (Table 11h). Above these floors, material visible in the profile of the looters' pit consists of stone, *shicra*, and clay from collapsed structures, but no pattern could be detected. Layers A and B likely postdate occupation of this area.

Two additional dates were obtained from the remains of a structure visible at the base of the looted area. *Shicra* obtained from the fill of this lower structure dated 2120 Cal BC (Table 11i), while plant fiber from plaster on the exterior wall of the structure dated 3070 Cal BC (Table 11j). The latter date has a large standard deviation (± 290 years) and spans the time from 3900 to 2300 Cal BC at the 95.4% confidence interval. It is possible that this date included older materials or was contaminated with other older inclusions in the plaster. It is unlikely that it represents a significantly earlier construction sequence, given the relative consistency of 10h and 10i. In this case, the Sector B mound may be considered to have had two main phases of construction and use, both in the period between the 22nd and 20th centuries BC. One lower structure was constructed and used, then subsequently filled with rocks in *shicra* bags, erecting a mound approximately a meter higher than the buried structure. Subsequently, more floors were laid across the structure, gradually raising the height of the mound to at least 5 m.

Clearing Profile 1 in Sector B revealed a phase of building with stone and clay mortar with fine plaster finishing the walls. This structure was built when the surface of the mound was at the base of the looted structure, some 2 m lower than at present. The room was later filled in using stone-filled *shicra*



FIG. 14. Caballote, bundle of willow branches buried at the base of Test Unit 4.

bags and a new floor placed on top. Continued occupation resulted in the accumulation of at least two more floors with associated remodeling of each floor. This process of construction and remodeling continued through the end of the third millennium BC (3000–2000 BC) and seems to have extended even further since a few ceramic fragments were recovered from clearing around the edge of the looted area, implying use of the area or visits to this mound after the introduction of ceramics at approximately 1800 BC.

These phases show only one part of the construction history of the Sector B mound. Since the looters' pit did not extend down through the entire mound to the sterile soil below, there are undoubtedly additional occupation layers below the floor (Phase VI) at the base. Although team members wore hardhats and used ladders to enter and exit the unit, additional excavation was not undertaken in this locality because the dimensions of the hole restricted excavation and its depth made further work hazardous.

Sector B, Test Unit 1—2003

The density of broken *shicra* bags, braided fragments, plant fiber, and reed fragments strongly suggests these materials were worked in this area (Fig. 16; Table 13). The concentration of plant fibers is greater than in any other unit investigated during 2003, and this locality may be part of a workshop for making *shicra*, woven mats, or other objects made of plant fiber. The deposits show leveling, preparation and construction of a low platform, followed by two subsequent episodes that deposited a thick layer of plant material, indicating lengthy use of this area with plant materials that accumulated a thick layer of debris. At some point, a floor composed of rock and clay was built on top of the plant debris, and activities continued. A distinctive layer of yellow-brown soil capped the plant debris, either marking an end to the activities carried out in this area, sealing the area for a subsequent use, or marking the start of a subsequent phase. A very different activity was then carried out in this zone, including the excavation of a pit that was subsequently filled with burned debris. This pattern of ash and rock in a pit

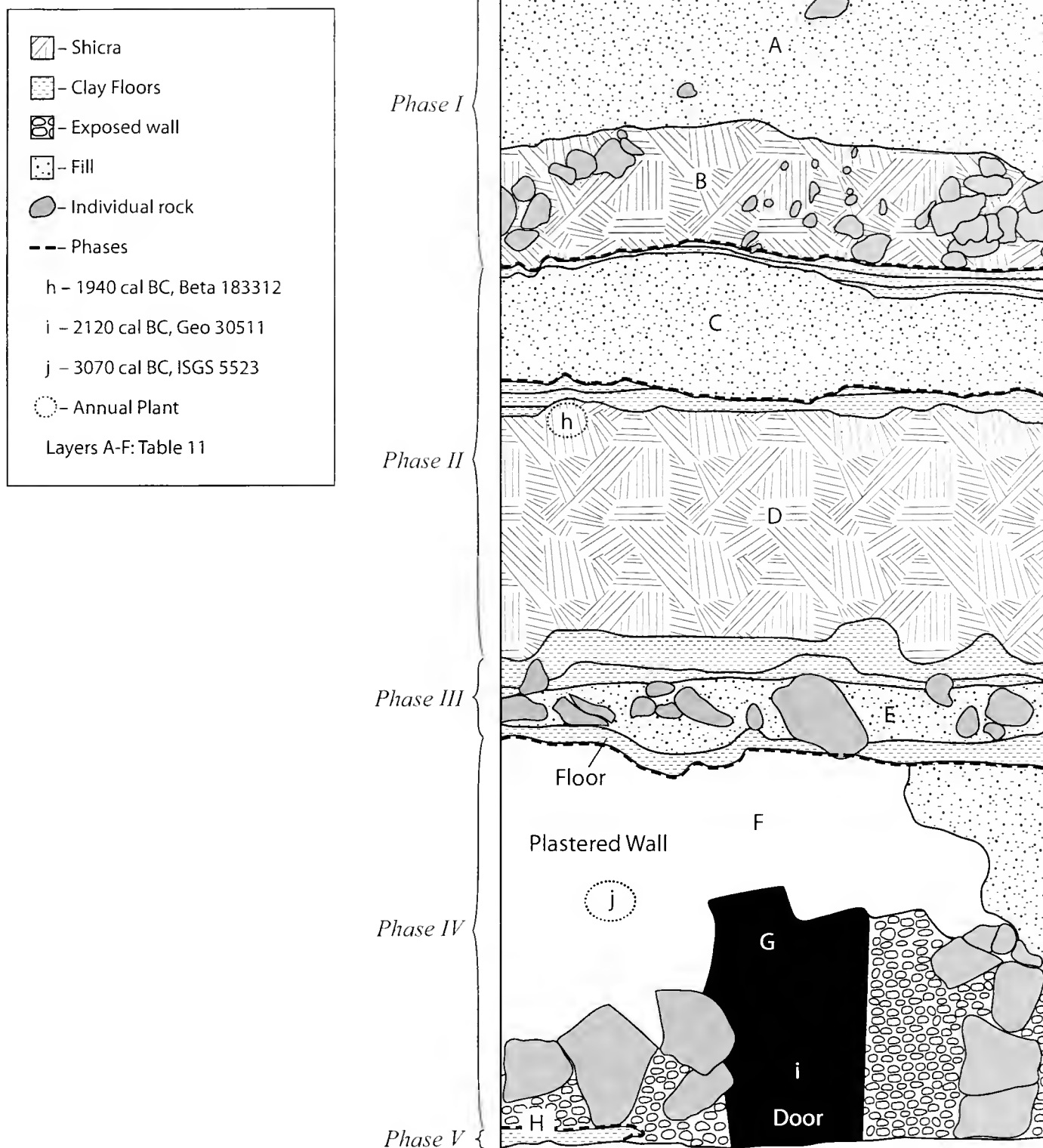


FIG. 15. Caballote, Sector B, Profile 1 (2003).

feature may indicate remains of a *pachamanka* or even multiple *pachamancas*, a method of food preparation using a pit oven and heated stones.

Dates of 2280 and 2070 Cal BC (Table 11k, l) were obtained from plant material in the upper portion of the fiber workshop area. Plant material from the lower portion of the fiber workshop, below the interim use surface, yielded dates of 2450 and 2350 Cal BC (Table 11m, n). The platform was constructed over a clay base dated 2620 Cal BC (Table 11o), while three samples from the clay layer below the platform dated 2500, 2340 and 2320 Cal BC (Table 11p–r). The cluster of dates indicates an early phase of construction between about 2500 and 2300 BC and then a later use of the area sometime around 2200 BC, when the fill

indicates extensive working of fiber similar to that used in *shicra* bags.

The dated layers of the unit show long-term use as a work area for making fiber items, beginning around 2500 Cal BC and continuing until around 2000 Cal BC. The workshop was established on a low platform constructed of *shicra* over clay used to level the area. During its period of use, this workshop area accumulated more than 50 cm of debris that included a range of midden materials but was mostly *junco* fiber and strands of woven *junco*. Although most of the unit was excavated using arbitrary levels, samples were recovered from clearly identified contexts including the thick deposit of plant and weaving materials both above and below the clay floor, from the layer of *shicra* (Level 8), and from the lowest level of clay floors (Level 9).

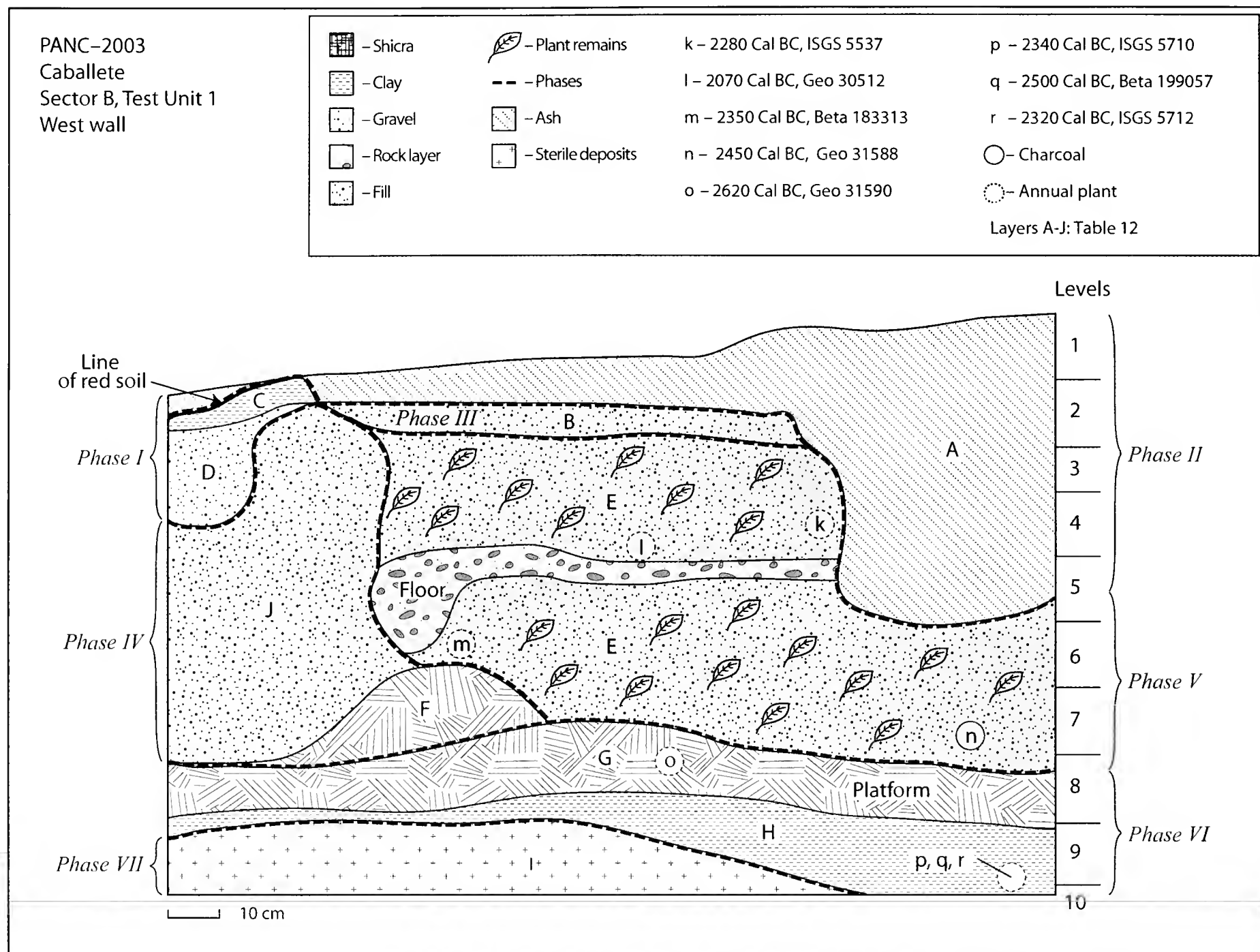


FIG. 16. Caballote Sector B, Test Unit 1 (2003), west wall.

Sector B, Test Unit 2—2004

This 1 × 2-m pit designated Sector B, Test Unit 2, was excavated in 2004. In Figure 9, this test unit is closer to Sector C despite its label. This is among the reasons that regular divisions of the site in units of 100 × 100 m and excavation by operations were initiated in subsequent seasons. Test Unit 2 was placed in a zone where small fragments of charcoal and mollusk shell could be observed on the surface. Patches of dark sediment were present on the surface, suggesting the possibility of ancient occupation. The deposits consisted of layers of different textures and compositions that included cultural material, though it was difficult to determine whether these were natural or cultural deposits (Table 14). No evidence of structures or features was recovered in this test unit (Fig. 17).

A fragment of a use surface was identified in Layer F, and below this layer was a shallow pit. However, the arrangement of layers of fine sand and clay cutting across the gravel deposits in the pit appears to be a natural rather than cultural deposit. Although the pit may have had a cultural origin, it appears to have been filled by natural processes. We can identify the two episodes of activity in this locality, confined to the small area of use surface and the pit. Artifacts on the

surface suggest that this test pit was in an area of domestic activity. Excavation suggests that occupation in this area was brief, and no artifacts were recovered that suggest a specific function. Small charcoal samples were recovered from the screened materials in this unit, but no in situ radiocarbon samples were collected, and no samples were processed from this unit. This possible residential area is undated but appears similar to other residential areas at this site.

In the Sector B excavations—one profiled looters' hole and two test units—we see that construction was under way between 2500 and 2300 Cal BC, as indicated by the dates from the lowest levels of Test Unit 1, the possible *shicra* workshop. Use could have begun even earlier in this area, as indicated by the date of 3070 Cal BC from the fiber in plaster at the base of Profile 1. More extensive and deeper excavation would be needed to examine the earliest construction of Mound B to compare the earliest construction in this sector with that of other mounds at Caballote.

Sector C

Sector C is centered on a rectangular mound on the western edge of the space encompassing the principal structures at Caballote. Attached to the front, the east face of the mound is

PANC – 2004
Caballote
Sector B
Test Unit 2
North Face

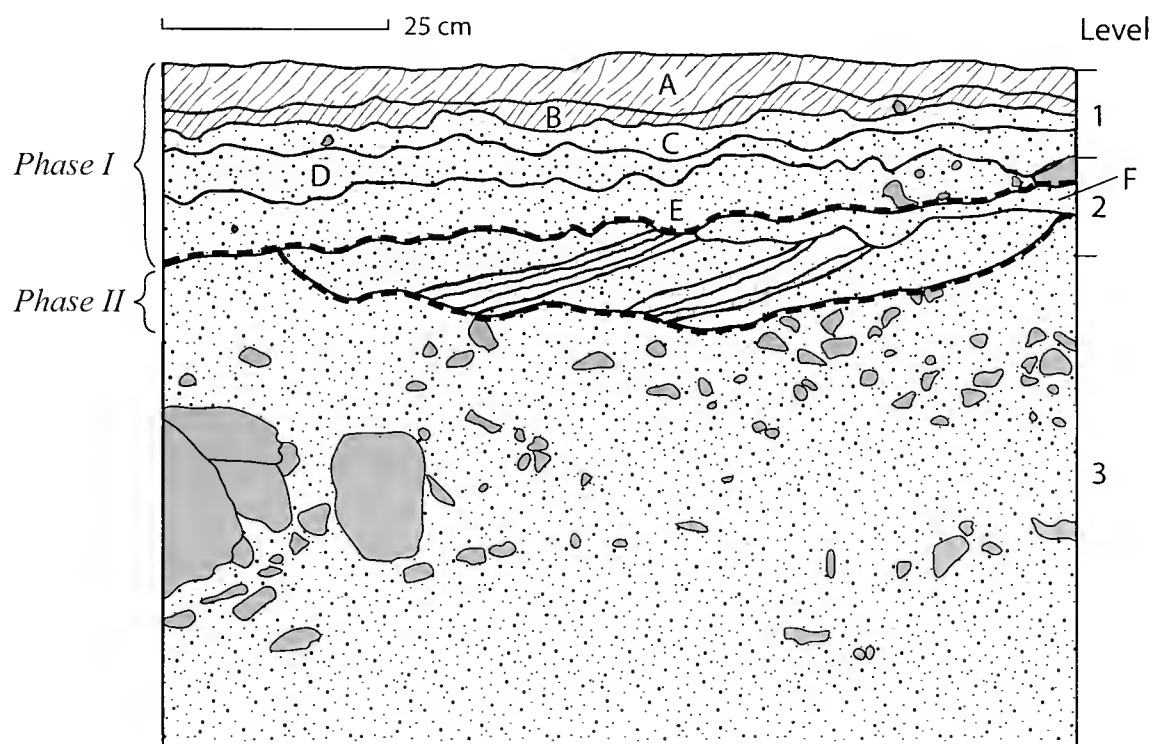
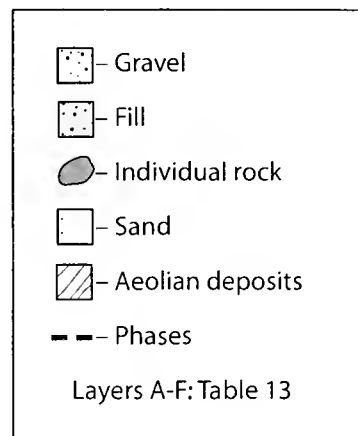


FIG. 17. Caballote Sector B, Test Unit 2(2004), north wall.

a low rectangular platform with a sunken circular court in the center. The base of the mound is 59×55 m; its maximum height is 7 m. The platform around the circular court is 35×33 m, while the circular court itself is 25 m in diameter.

The present surface of the mound is covered with fine wind-blown sediment and sand, along with medium-sized fragments of angular rock and some mollusk shell. Toward the north corner of the upper surface of the mound are three looters' holes. In the sides of the three, layers of trash are visible, composed of ash, large quantities of mollusk shell, plant remains, and charcoal. Some wall segments are visible, and in one of these holes *shicra* bags were visible. On the upper part of the mound is a depression that outlines a U-shaped atrium oriented toward the sunken circular court. The mound is connected with two flanking platforms where the bases of angular stone and clay structures are visible. The area surrounding the Sector B mound is part of the plow zone described above, and the exposed deposits revealed an extensive area where clusters of burned rock, ash, and mollusk shells are visible on the ground extending from northeast to southwest of the mound. These clusters appear to reflect extensive use of this area for *pachamancas*, or roasting pits.

Sector C, Profile 2—2003

Profile 2 was located on the north side of the mound, where a long trench, apparently from digging with heavy machinery, left a large exposed area. The cleared area extended across an area 3×12 m (Table 15). The heavy machinery used in this area broke through the walls of rooms, retaining walls, trash deposits, and construction levels of *shicra*. There was a large quantity of *shicra* in secondary context, along with mollusk fragments and lithics.

A date of 2400 Cal BC was obtained from a fragment of *shicra* bag in Phase 1, while a date of 2320 Cal BC was obtained from a sample in the adjacent section of the profile (Table 11s, t). These indicate a period of large-scale construction, as evidenced by the thick layer of fill in Phase I. A date of 2160 Cal BC (Table 11u) was obtained from the base of the cleared area. The sample comes from material that was used to fill in the area adjacent to Wall 2, the edge of a platform (Phase III). The date represents a time after the Phase III platform, and the use surfaces or platform surfaces were identified in use (Fig. 18B, C). The position of date "u" may show that the mound was expanded outward from the center and that the portion of the mound including Wall 2 and Layer

PANC-2003
Caballote
Sector C
Profile 2
East Profile

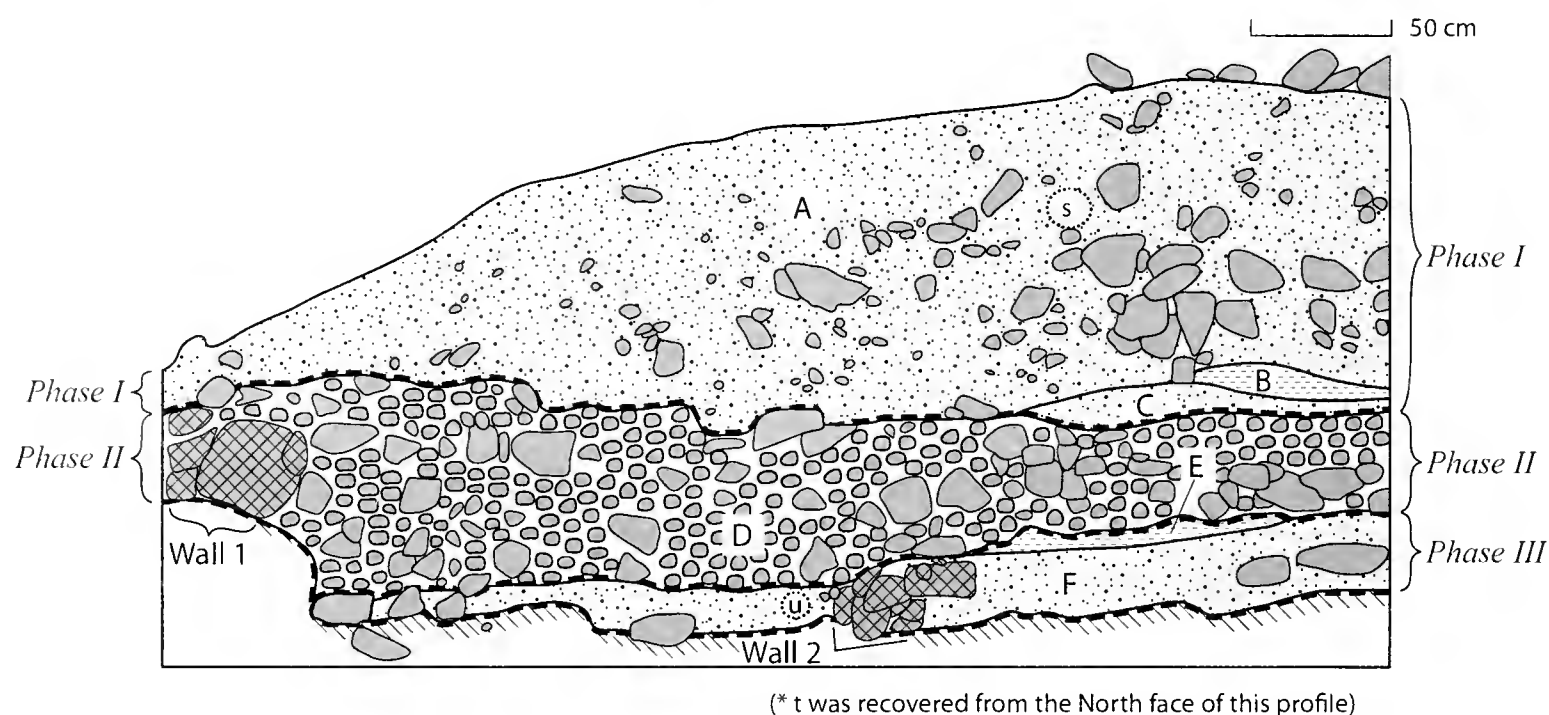
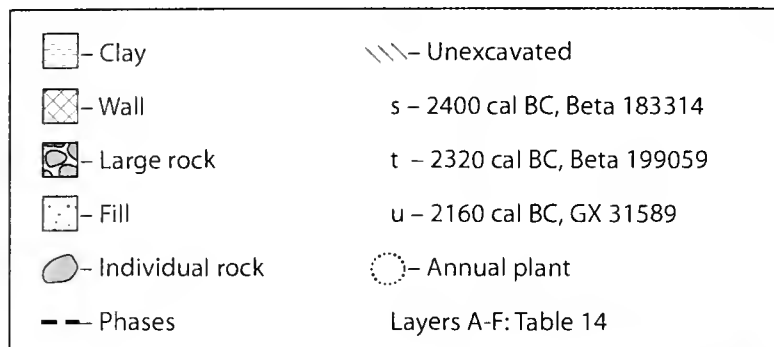


FIG. 18. Caballote, Sector C, Profile 2 (2003).

F along with Layers E, C, and B are older than the portion of the mound between Wall 2 and Wall 1. Subsequent construction included a large retaining wall (Wall 1) and a substantial phase of stone and adobe construction. Phase 1 raised the level of the mound a meter or more. The dated portion of the mound ranges from about 2400 to 2160 Cal BC and shows two phases of construction.

The base of the area cleared as Profile 2 was well above the base of the mound, suggesting that initial construction took place earlier than any of the radiocarbon dates. Walls of rooms that were present during Phase II or III of mound use could be seen in other sections of the profile that were cleared. Construction of the rooms identified predates the radiocarbon samples, which were collected from the material that filled in the rooms. The dates indicate that construction of rooms predated 2100 BC and that occupation of the site continued after that date, based on the occupation layers above the fill from which the samples were collected. The mound itself was comprised of a series of platforms that were subsequently covered by more extensive retaining walls and platforms in the sequence of construction.

In the profiles of the mounds in Sectors B and C, a common construction technique is used, employing river cobbles as tools. Although construction is largely of angular rock, probably quarried nearby, the construction fill in both mounds includes river cobbles that display use wear. It appears that cobbles were used to trim chunks of angular rock as they were placed in wall construction, presumably to make a flat exterior face for the wall. After a brief period of use, the cobble, too, appears to have been thrown into the construction fill and another selected to continue the process of trimming and positioning rock in the

retention walls. This would explain both the presence of cobbles in construction fill and their relative scarcity.

Sector C, Test Unit 2—2003

Test Unit 2 was a 1 × 2-m unit located 50 m northeast of the Sector C mound. Fragments of shell and lithics were observed on the surface, and this locality was chosen because it appeared to be a habitation area (Fig. 19). The upper layers of this unit (Phase I), where a pit was dug and filled in, may postdate the general occupation of Caballote (Table 16). Prior to this activity, a structure or platform was built and used in this area (Phase II), based on Wall 1 and associated use surfaces, as seen in layers of compact soil, evidence of use surfaces. Below this wall and use surfaces, there appears to have been a hiatus in occupation, as indicated by deposits of fill consisting of compact, dry soil with few rocks that contained a variety of cultural materials including shell, bone, plant remains, lithics, and charcoal. This may also indicate the area changed use and was a midden for a period of time after occupation of Floor 1. That floor was an intentionally constructed use surface made of clay embedded with small stones without a smooth clay plastered surface. A thick layer of plant material accumulated on top of much of the floor, suggesting that this may have been a workshop for woven goods for some period of time. This is similar to the workshop in Sector B, Test Unit 1, with less accumulation of plant remains and perhaps in use for a shorter period of time.

The chart of calibrated dates and ranges (Table 11) indicates a long period of utilization of this locality, possibly as long as from 3620 to 2120 Cal BC. Although there is

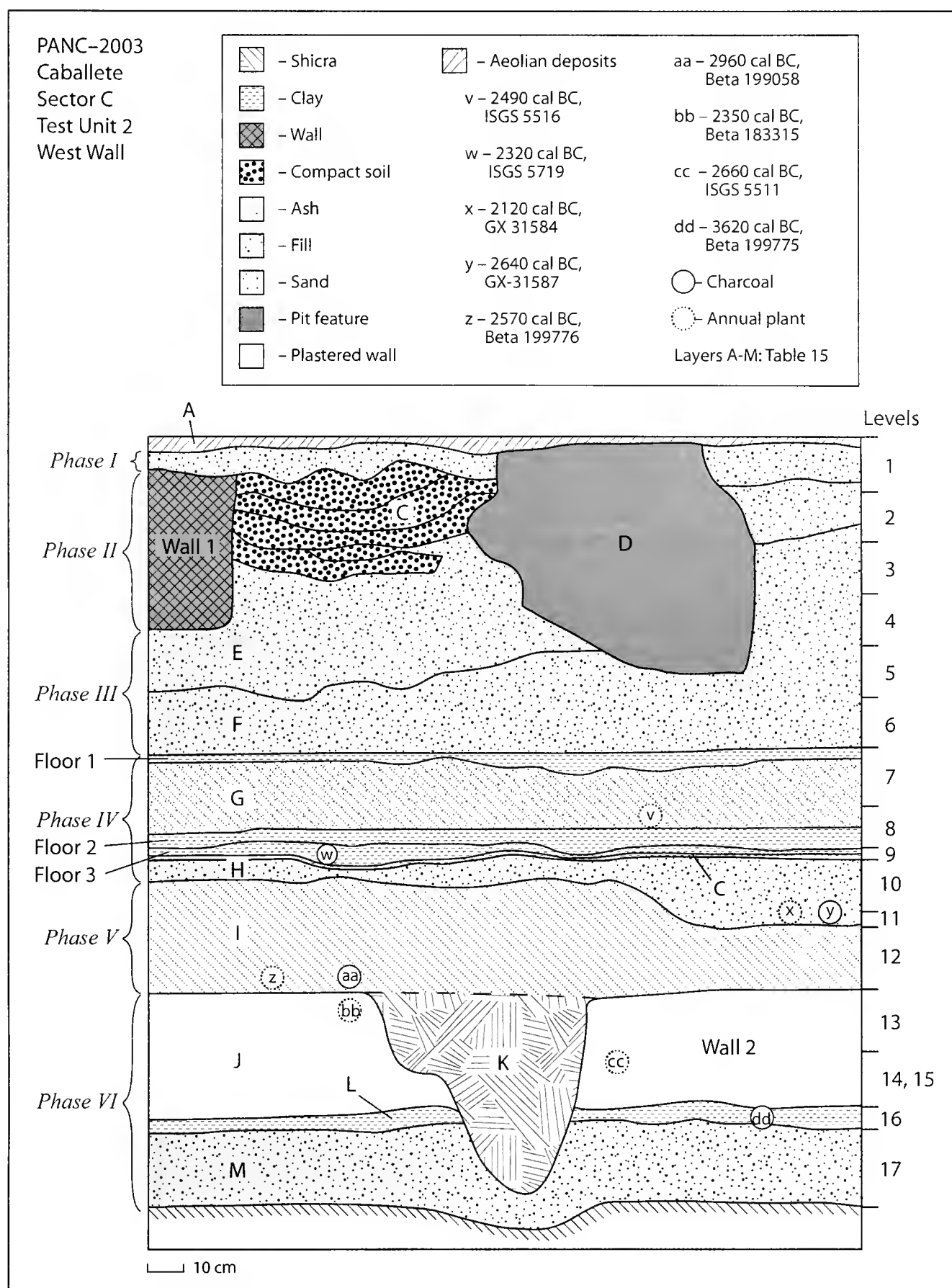


FIG. 19. Caballote Sector C, Test Unit 2. The top of a plastered wall or bench is visible below a layer of dark midden in the bottom of TU 2. A shicra bag filled with small stones is adjacent to the wall.

discrepancy in the stratigraphic relationship among the different dated samples, the calibration ranges indicate a consistent period of use between approximately 2660 and 2120 Cal BC, a likely range of dates for this unit. As mentioned above in the section “Charcoal, Radiocarbon, and Old Wood,” when there are paired dates, the date from charcoal is older. The weighted average date for sample “x” from Level 11 from annual plants is 2120 Cal BC, while that for sample “y,” also from Level 11 but from charcoal, is 2640 Cal BC. Similarly, the weighted average date for sample “z” from Level 12 from annual plants is 2570 Cal BC, while the weighted average date for sample “aa,” also from Level 12 but from charcoal, is 2960 Cal BC.

However, charcoal does not always yield older dates older than annual plant fibers. The weighted average date for sample “v,” plant fibers from Level 8, is 2490 Cal BC, while the weighted average date for sample “w” is 2330 Cal BC, though it is charcoal from stratigraphically *below* sample “v” in Level 9. This problem highlights the challenges of working in an ancient and preceramic context where the only dating technique available at present is radiocarbon. While it is unlikely that annual plant fibers will yield deceptively “old” dates, charcoal can come from either “old” or “new” wood and either yield dates that are too old—reflecting the death of the tree, not the use of the wood—or be from wood that is cut and used at the same time—accurately reflecting the age of the deposit.

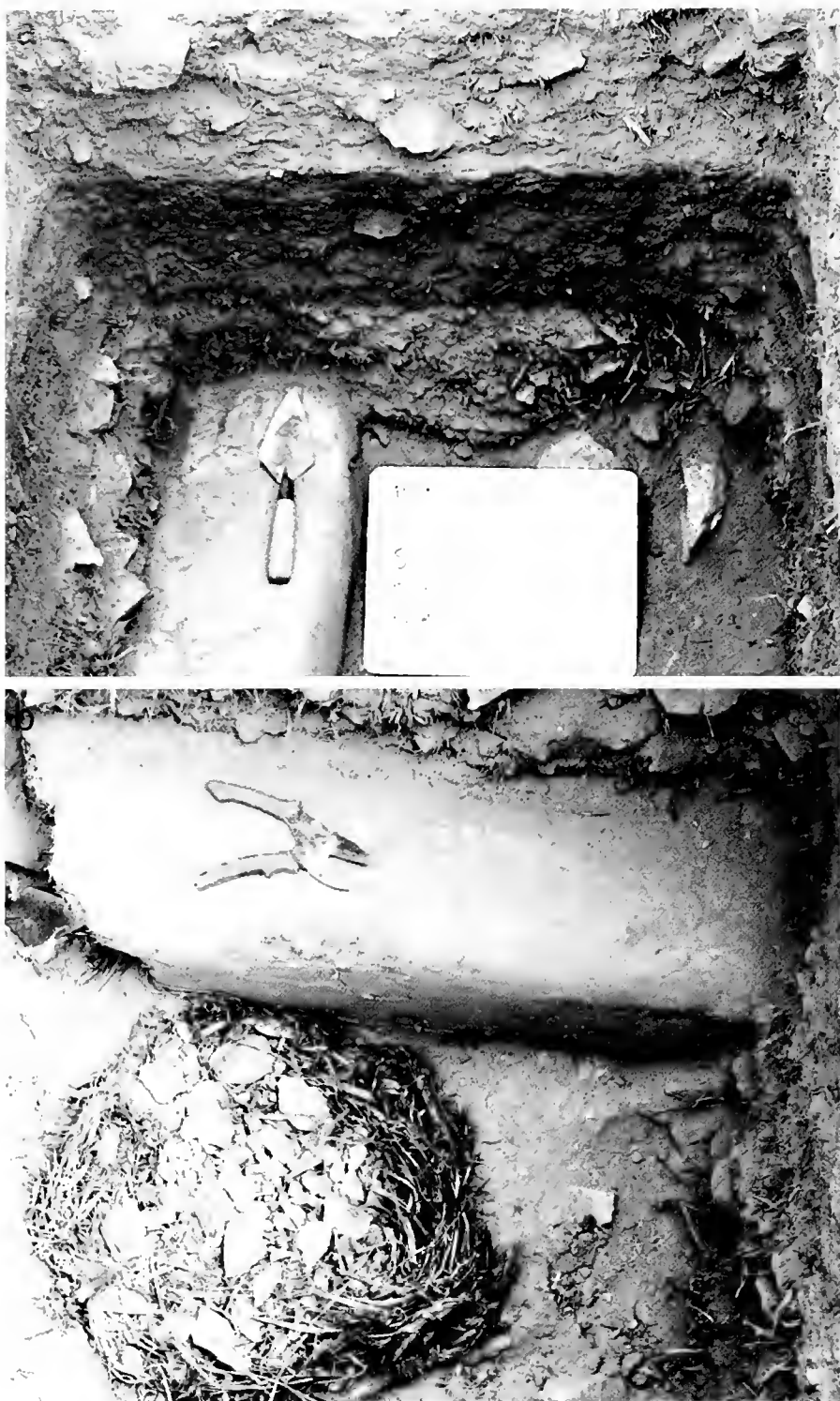


FIG. 20a. Caballete Sector C, Test Unit 2, north profile, showing midden deposits and plastered upper surface of bench.

FIG. 20b. *Shicra* bag lined with leaves and filled with small stones above plastered bench, Caballete, Sector C, Test Unit 2.

Dates from Sector C Test Unit 2 (Table 16), range from 2960 to 2120 Cal BC. Sample “dd,” charcoal from a floor that was associated with the Wall 2 bench, yielded a weighted average date of 3620 Cal BC. The dates from charcoal samples may yield systematically earlier dates than annual plant fiber (Table 3; Table 16), but this would need further testing. The few pairs of samples including annual plant and charcoal taken from a single provenience are too few in number to tell whether this is a consistent difference or a largely random difference based on the use of culturally old wood as a result of desert preservation. At the same time, a calibrated date of 3620 Cal BC is within the overall range of dates for Caballete.

The goal of recovering dated materials from habitation areas was met in that the Phase V midden produced a variety of food remains even though this area did not produce any habitation features apart from floors and use surfaces. The plastered bench at the base of the unit was not cleared extensively enough to determine whether it was part of a habitation area or some administrative feature (Fig. 20a). The *shicra* bag found adjacent to the bench and presumably part of the fill over this feature

shows another variation in construction material. The woven bag was lined with leaves and filled with small rocks that would have fallen out of the bag without the lining (Fig. 20b). The fact that this structure appears to date to at least 2660 BC and perhaps much earlier, coupled with the deep deposits and its excellent preservation, makes this a promising place for future explorations of change over time in the occupation of Caballete.

Sector D

Sector D includes the eastern portion of Caballete. This sector includes a rectangular mound measuring 120×47 m at the base and 7 m high. The mound is covered with a large quantity of angular rock and a few fragments of mollusk shell. The central portion of the mound is a raised platform 38×45 m on which alignments of stones are visible that formed the base of structures and where two looters’ holes have been dug. One of the holes reveals a wall of angular rock set in clay mortar that retains some of its original clay plaster and white paint. Stone alignments are present on the upper surface of the lateral arms of the mound as well.

Sector D, Profile 3—2003

At the rear of the mound on its eastern face, a large elongated area has been excavated by looters. The profiles reveal a series of layers of construction fill, including medium and large angular rocks and *shicra* bags (Fig. 21; Table 17). These layers of fill alternate with clay floors, some carefully prepared. The uppermost section of floor was beside Wall 1. Plant fiber from the wall plaster yielded a date of 1620 Cal BC (Table 11ee), while a sample of plant fiber from above Wall 1 yielded a date of 2150 Cal BC (Table 11ff). These samples suggest use of the upper part of this structure from end of the third millennium and beginning of the second millennium BC.

Below Wall 1, collapsed walls and construction fill were layered with floor fragments. *Shicra* fragments were numerous, and *shicra* construction appeared to continue below the exposed area of the mound. A fragment of a *shicra* bag from Layer F dated 2390 Cal BC (Table 11gg). Together, these samples suggest the Sector D mound was being built by 2400 Cal BC and was in use until sometime between 2100 and 1600 Cal BC. The floor fragments identified suggest that there were a number of different construction phases in construction of the Sector D mound. A massive construction phase using *shicra* may comprise the lower portion of the mound, where the rocks were large and *shicra* fragments numerous. Most of this material was not exposed and remains to be examined. Evidence of specific activities other than construction was not apparent in this area, as only small fragments of floor were uncovered.

Sector D, Test Unit 3—2004

Test Unit 3, a 1×2 -m test unit, was located in Sector D at the foot of the lateral platform south of the mound (Table 18; Fig. 22). The platform is outlined by large rocks, the remains of a retaining wall that defined this face of the platform. The surface does not show evidence of monumental architecture, only some mollusk fragments. For this reason, it was decided to locate the pit here as part of our effort to identify domestic activity areas that could date to the Late Archaic Period. Because natural stratigraphy could

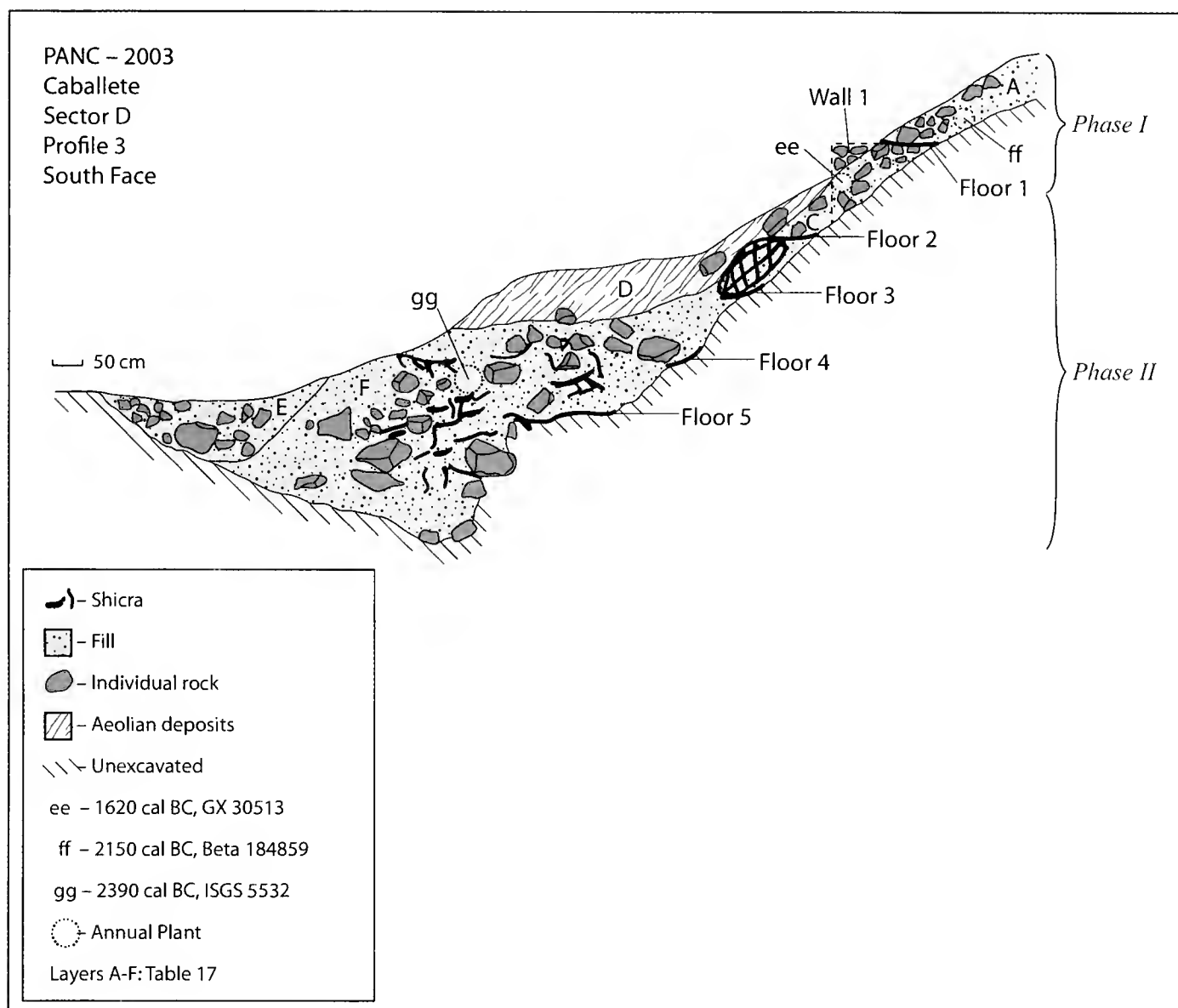


FIG. 21. Caballote, Sector D, Profile 3 (2003).

be detected, this test unit was excavated in natural layers instead of arbitrary levels.

Test Unit 3 included deposits of alluvial gravel under thin layers resulting from human activities. These were associated with shallow pits and a packed use surface. Unlike some other units, no constructed floors, hearths, or specific activity areas were identified, suggesting limited use of this locality. Despite this general result, a small group of stones was uncovered in the center of Layer 5, associated with a fragment of cloth. Buried 20 cm below the surface of Layer E, this proved to be the interment of an infant wrapped in cloth in a seated position and tied in cord (Fig. 23). The cloth fragment recovered was flat weave in a two-over/two-under pattern. No pit outline was detected, suggesting the burial may predate the compacted surface and pit features recorded. This infant burial was not associated with any structure or feature and therefore does not appear to be dedicatory.

Test Unit 3 provides evidence of occupation on three different occasions that consists of layers of compact soil forming use surfaces. In the surface layer and the uppermost feature in Layer C, some fragments of plain undecorated ceramics were recovered. At some point, an infant was buried below the use surfaces. Neither the surface that was in use when the infant was buried nor the outline of a burial pit could be identified. Loom-woven or flat weave cloth is rare during the Late Archaic Period, and paired threads, as in the sample around the burial, are not known from Late Archaic sites. Bird et al. (1985, pp. 53, 191) mention 2×2 weaving from the upper layers of his Test Unit 3 at Huaca Prieta, but the

radiocarbon dates suggest that this is an Initial Period context. However, the use of flat weave does not entirely rule out a Late Archaic date (Doyon-Bernard, 1990, p. 71). Dating of the cloth fragment would be required to follow up on this possibility. At this point, the infant burial may be evidence of a relatively late phase of occupation at Caballote or of use of the site after it was abandoned as a community. However, interments made after occupation of the site ended tend to be clustered, such as in Sector F, where most of the sector consists of looted burials interspersed with small architectural units, leaving the temporal position of the infant interment ambiguous. Further discussion and a detailed description of the burial are available in Bazan (2012).

Sector E

Sector E is at the southern end of the site, near the edge of an alluvial fan within the *quebrada*, the dry wash, in which the entire site is constructed. This sector includes two rectangular mounds. The larger mound measures $69 \times 53 \times 7$ m. The smaller mound is 56 m to the northeast and measures $53 \times 37 \times 5$ m.

The summit of the larger mound clearly displays a rectangular sunken atrium flanked by two raised platforms, each of which is also covered by a large number of medium-sized blocks of angular rock that appear to be the remains of collapsed structures built on the mound. In addition, a scatter of mollusk shell and a few fragments of heavily eroded ceramics are present. The surface on the plaza side of the mound has a

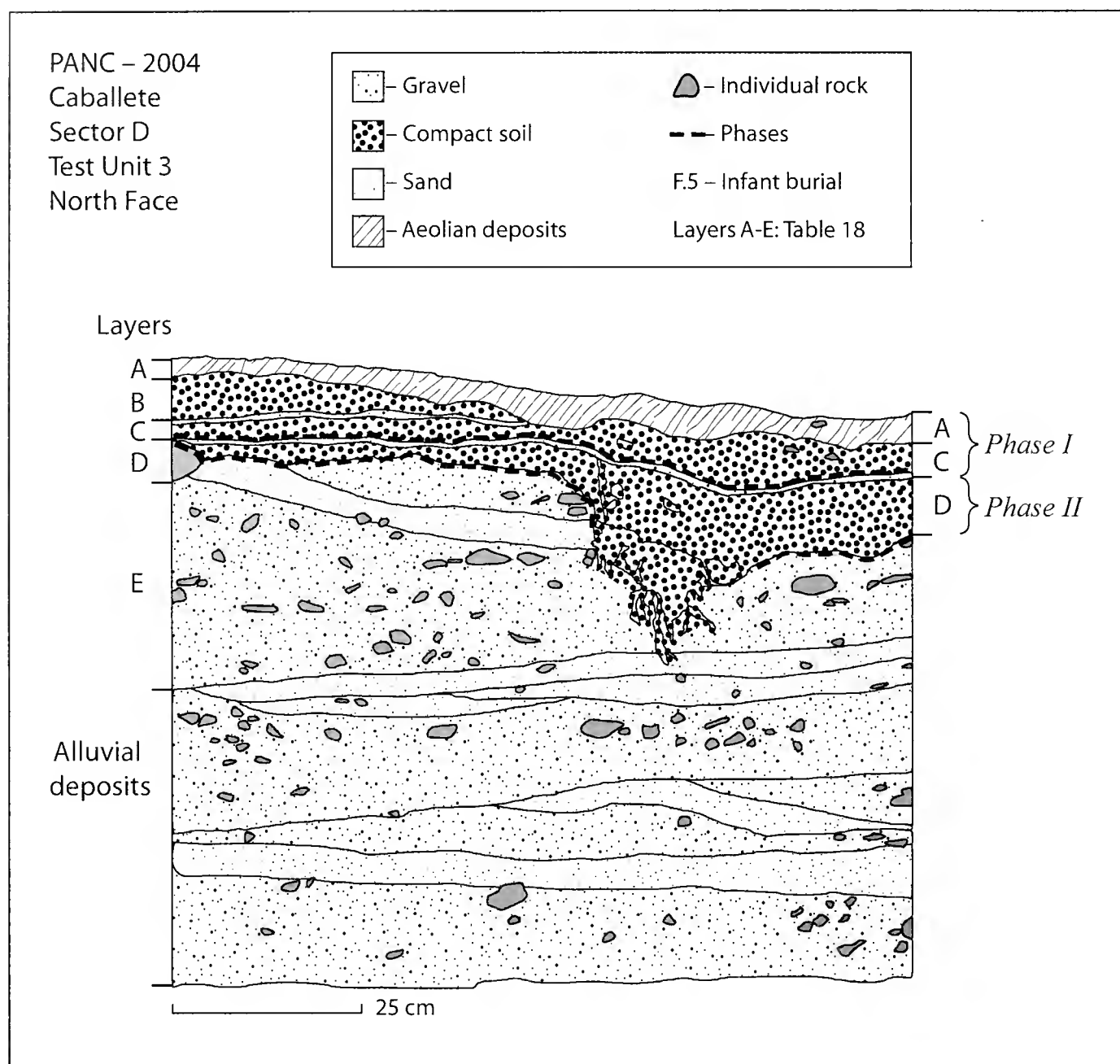


FIG. 22. Caballote, Sector D, Test Unit 3 (2004).

slight depression that the excavation of Trench 1 suggests is a sunken circular court that has been covered by alluvial soil.

Sector E, Trench 1—2003

The Sector E mound was constructed of angular rock and fits the pattern of preceramic architecture. At the summit of the mound, an open rectangular atrium bounded by low walls approximately 10×10 m is visible. This feature was connected to the area under investigation at the foot of the mound by a broad staircase, now collapsed. Beyond the staircase, a large rectangular court, 95×50 m, is surrounded by a low, thick stone wall. Bounded on one side by the mound in Sector A and on the other by a gully formed by flash floods, the level area at the foot of Mound E was thought to hold a circular court that had been filled in by soil that on rare occasions washes down the stream bed. Aerial photographs show a circular feature inside this rectangular court and centered on the atrium of the mound, although on the surface this feature has been obscured by flooding and alluvial fill. Short rows of large rocks mark the corners of a low rectangular platform that extended toward the site center from the base of the Sector E mound. Such low platforms often surround sunken courts, and a test trench 1×5 m was excavated in this locality, using the southwest corner of the unit as a datum point. Trench 1 was excavated on the east side of the rectangular court in a location that would transect

the edge of the circular feature seen on aerial photographs (Table 19).

Excavation in this area (Fig. 24) yielded sloping contours demonstrating a clear depression, as would be expected for a sunken circular court. No architectural elements, such as stairs, walls, or floors, were found that might confirm the presence and form of a circular court. However, the stratigraphy of the unit does suggest the presence of a sunken feature in this area that was excavated more than a meter below the original ground surface. It would be necessary to enlarge the trench to confirm the size and configuration of this sunken feature. Excavation of Trench 1 suggests the existence of a sunken circular court at the foot of the mound in Sector E. An event of flooding may have filled in most of the sunken court and subsequent erosion and deposition filled the area even further (Layer A). A charcoal sample was dated to 3120 Cal BC, while mixed plant fibers yielded a date of 2520 Cal BC (Table 11hh, ii), suggesting that this circular court was constructed between 3000 and 2500 Cal BC. Although the court may have been a simple circular depression, excavated into a low platform and without slabs of stone lining the interior, the stratigraphy indicates its shape. This kind of simple circular court was also found at the site of Cerro Lampay, immediately across the Fortaleza Valley from Caballote (Vega-Centeno, 2005). The presence of a circular court in this location is also indicated by a clear circular outline immediately in front of the mound atrium evident on



FIG. 23. Caballote, Sector D, Test Unit 3 (2004), photo of infant burial.

an aerial photograph taken in the 1940s (Fig. 25). Including this feature with the others at the site, Caballote has three sunken circular courts, another indication of its important role in the region. Further excavation could clarify the dimensions and nature of this feature.

Sector E, Test Unit 5—2004

This test unit was located in an apparent residential area, as identified by the deposits visible in a profile exposed by looters. The exposed profile displayed a substantial cultural deposit more than a meter below the surface. A few meters south of this profile was an intensively looted cemetery area, though from the materials on the surface, the cemetery dates to a much later period than the main occupation of Caballote.

Evidence for residential occupation in this area was limited, and the deposits were not as deep as they appeared in the nearby looters' pit (Table 20; Fig. 26). A layer of compact soil that forms Phase I did not necessarily correspond to a use surface, as the soil appeared to be compacted by exposure to surface moisture rather than foot traffic. Feature 2, a shallow pit, held midden remains that did not provide distinct evidence of function, nor did the larger and more steep-sided pit, Feature 3. Evidence of these pit features in the north end of the unit and another in the west side of the unit became visible as the profiles were drawn. Cultural materials seem to have come from the pits and the associated Layer D.

The excavation, though relatively shallow, yielded evidence of multiple strata, yet none of these provided substantial cultural remains. Test Unit 5 in Sector E did not yield the expected results. Despite an adjacent looters' pit indicating presence of deep cultural deposits, Test Unit 5 was relatively shallow. There was evidence of the use of this area for trash disposal, as indicated by the three pits that were identified during excavation, one of which was a natural irregularity in the surface filled with debris. Features 1 and 3, however, have steep sides and flat bases, though neither was distinguished during excavation. Two periods of extended use are visible, including the compact soil Layer B and the features associated with Layers C and D. Samples for radiocarbon dating were obtained from this unit, but most were charcoal. A sample of annual plant fiber was collected during screening and was not in situ, and no samples from this locality have been processed. The presence of midden without ceramics, even though undated, suggests that this locality dates to the Late Archaic Period, when Caballote was occupied.

Sector F

This sector includes the southwest part of the site, adjacent to Sectors A and E, between these two sectors and the thick alluvial deposits that form the base of the La Empedrada wash where it empties into the valley. This sector does not include any mounds and is bounded by a wide wall of angular rock set in clay mortar that averages 1 m wide. The wall runs in a sinuous curve toward the west, along the edge of the alluvial deposits. The entire *quebrada* is composed of thick alluvial deposits laid down by many years of periodic El Niño episodes flooding the bed of the wash.

Looters have heavily disturbed this part of the site, and as a result there is a significant quantity of human bone on the surface along with remains of textiles, ceramic, and gourd bowl fragments that appear to have come from the looted graves. This is similar to the condition of the site in the northern part of Sector E. However, some looters' holes have revealed exposed profiles where wall segments of rock and clay mortar were plastered with a coat of clay mixed with plant fiber. In some cases, these wall segments are associated with use surfaces, ash, and trash deposits that suggest activities associated with residential occupation.

Sector F, Test Unit 1

This 1 × 2-m pit was located just south of the main mound in this sector and within an area where the remains of rectangular stone structures are visible on the surface (Fig. 27). Excavation revealed a use surface, Layer E, probably associated with activities when Caballote was occupied during the Late Archaic. No dates were obtained from this layer, and it may date to the use of Caballote in the centuries after its abandonment when the area was used as a cemetery. Several different cemetery areas are present at the site, and the remains excavated in Test Unit 1 included two interments along with midden and construction debris or rubble from structures. Other activities were not identified in this area.

Two individual interments were revealed in Test Unit 1. The uppermost of these was an infant, first recognized by cranial fragments associated with textile fragments. When excavated, it was found to be largely intact, an infant or very young

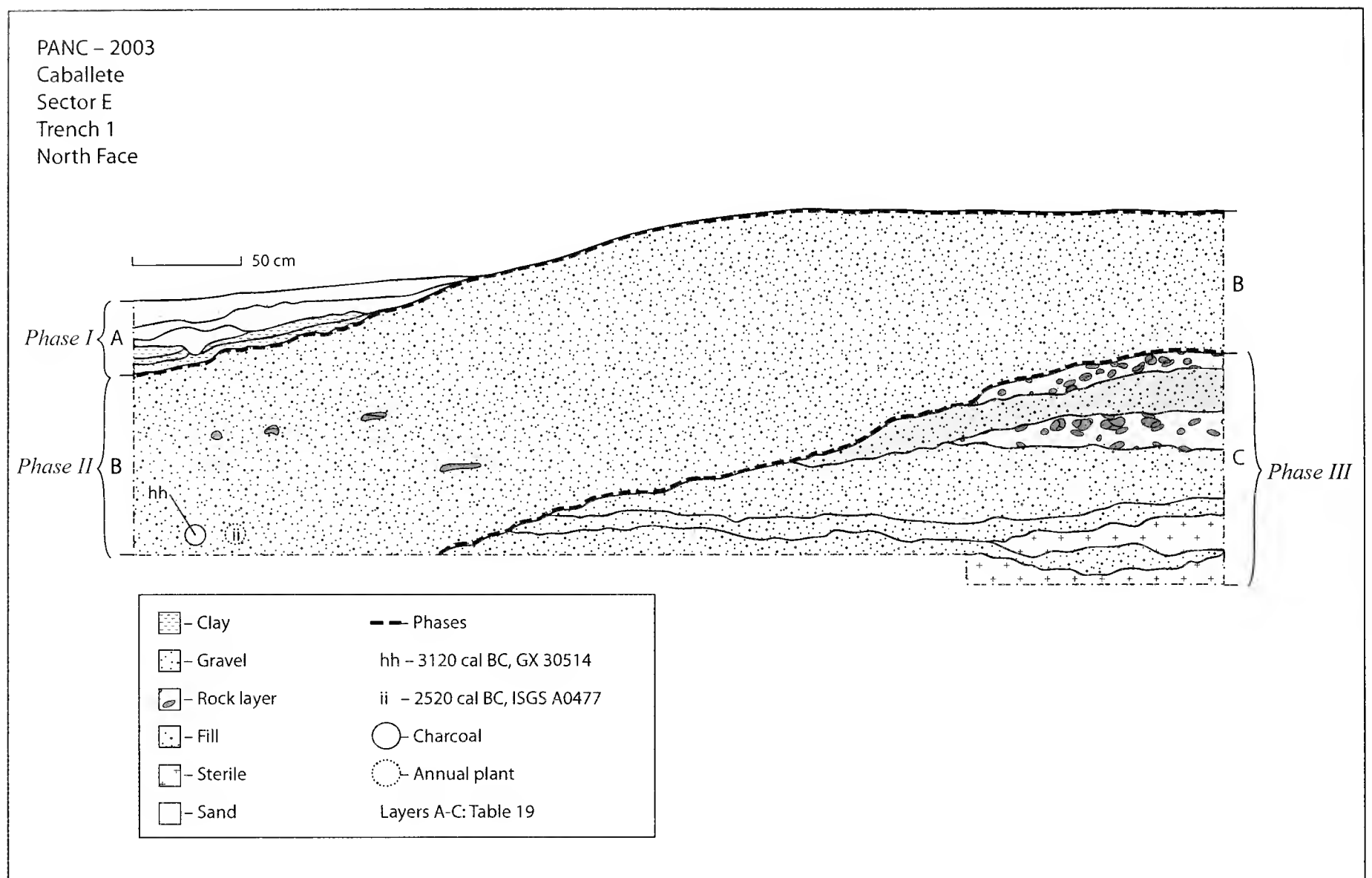


FIG. 24. Caballote, Sector E, Trench 1 (2004).

juvenile lying on its right side in a lightly flexed position. The infant appears to have lain on a bed of fibrous plant material, wrapped with textiles. Traces of red pigment could be observed on some textile fragments. No other artifacts were collected with the infant burial (Bazan, 2012). A sample of

plant fiber associated with the infant burial was dated 940 Cal BC (Table 11jj).

Below the infant was an interment that proved to be an adult female (Fig. 28). The burial was first identified by a fragment of wicker basketry that proved to be positioned over the head. While both individuals were oriented east to west, the infant's head was to the east and the adult's to the west. The adult was wrapped in textiles, though these were badly deteriorated, and was seated on or wrapped in a woven mat of wild cane or similar material. More than 20 fragments of the textiles and burial wrapping were recovered, although only two twined fragments are more than ten cm long. The woven materials include fragments of twined and flat weave fabric, string, and cane matting. One sample was identified as a "fiber mask," though it could not clearly be identified as a mask. This fragment appeared to be a layer of coarser, more loosely woven fabric over a more tightly woven flat weave textile. The top layer is dark in color and mostly deteriorated, while the flat weave is a lighter color and better preserved.

Three gourd bowls were uncovered by the feet of the individual, and one additional bowl was beside the head. On the south side of the individual near the large rocks mentioned above were other burial goods on reed matting. These included obsidian blades, shell beads, three small spindle whorls (one incised with a face on three sides), a mollusk valve, and implements of bone and wood that appear to be associated with weaving. Excavation around the head revealed a necklace of 52 disk and tubular pyrite beads or bead fragments. Sizes vary somewhat, but each bead measures up to 0.5 cm long and is

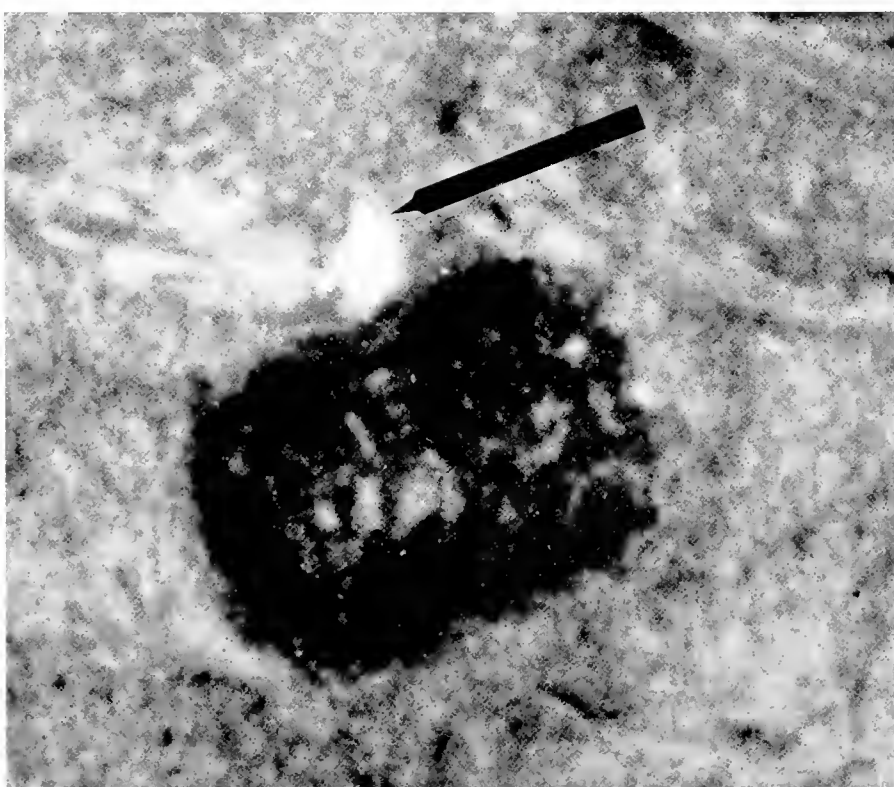


FIG. 25. Historic air photo of possible circular court in Sector E.

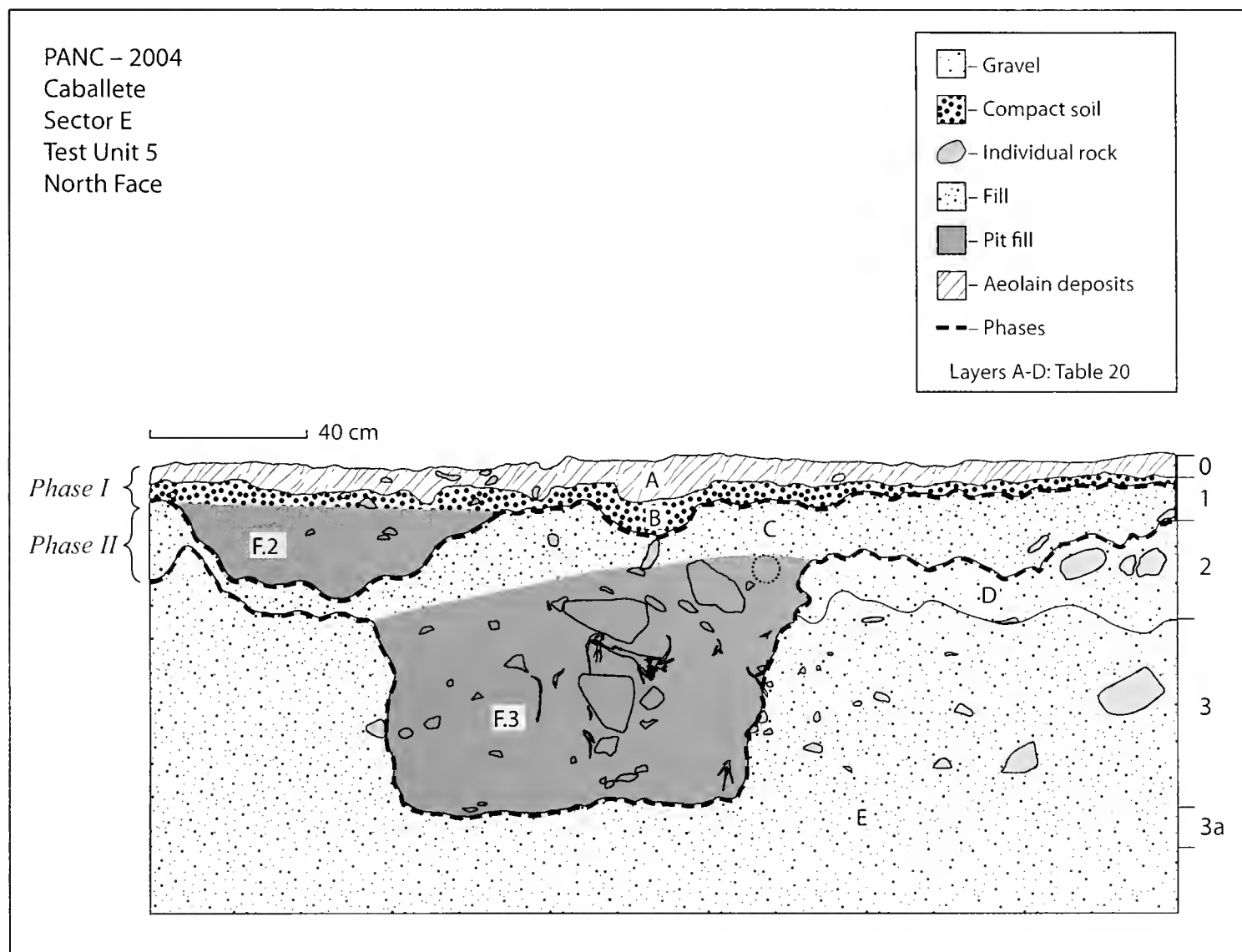


FIG. 26. Caballote, Sector E, Test Unit 5 (2004).

0.5 cm in diameter with a perforation 0.2 cm in diameter. One hollow gold bead was found, measuring approximately 0.8×0.5 cm. Several of the beads were impressed into hardened earth around the cranium, indicating that the beads were part of a necklace (Table 21). A radiocarbon date from plant fiber associated with the Feature 2 burial dated 680 Cal BC (Table 11kk). The dates associated with infant and adult are not coeval. The period of greatest probability associated with Feature 2 (adult) is 896–507 Cal BC (98.3%), while the range of probability associated with Feature 1 (infant) is 1270–842 Cal BC (99.3%). Thus, the two individuals could be from the same burial episode around the middle of the ninth century BC. Examination of the pit profiles suggests that the Feature 2 burial shared the same pit as the infant in Feature 1. Although initially the burials appeared to date to the Late Archaic because of the associated gourd bowls and woven materials, the presence of metal ornaments indicates a later date than is supported by the radiocarbon results. A detailed discussion of the burials can be found in Bazan (2012).

There is precedent for use of Caballote and other Late Archaic sites as burial places in the centuries following their abandonment (Haas & Creamer, in press). Several areas of later interments are visible at Caballote, including a portion of Sector F. Thus, these individuals excavated from Sector F are probably not associated with the Late Archaic occupation. Both date to the first millennium BC, long after the monumental mound complex had ceased to function as a ceremonial center.

Test Unit 1 in Sector F was excavated to examine this portion of the site for remains of residential structures. None were identified, though two burials, an adult and an infant,

were recovered. Initially, the interments were suggested as dating to the Late Archaic based on their association with textile fragments, woven bags, the gourd bowls associated with the adult and the basketry fragment covering the head of the adult. Complete excavation revealed the presence of metal beads and obsidian blades, and the radiocarbon dates confirmed the later date of both burials.

Caballote Discussion

Caballote yielded a variety of data during 2003 and 2004 that show the antiquity of the site, which may have been under construction as early as the fourth millennium BC (Table 11). Four dates fall before 2900 Cal BC. Five of the six sectors tested yielded dates prior to 2000 Cal BC. Unlike Porvenir, where occupation of the site appears to fall into two distinct periods, Caballote seems to have been occupied steadily throughout the third millennium BC. Most dates cluster between 2700 and 1900 Cal BC, with only one Initial Period date (Table 11ee). Two later Early Horizon dates, 940 and 680 Cal BC, come from what proved to be intrusive burials despite the presence of gourd bowls and basketry as grave goods. The site was employed as a burial area for centuries after it no longer held a permanent occupation.

Radiocarbon dates do not indicate that sectors were occupied at different times. Dates from Sectors A–D were most numerous in the period 2600–2100 Cal BC. Sector E yielded earlier dates and Sector F later dates. From this, it appears that many more dates from each sector of the site will be needed to determine whether these structures were built simultaneously or in sequence. Each pattern has

PANC – 2004
Caballote
Sector F
Test Unit 1
South Face

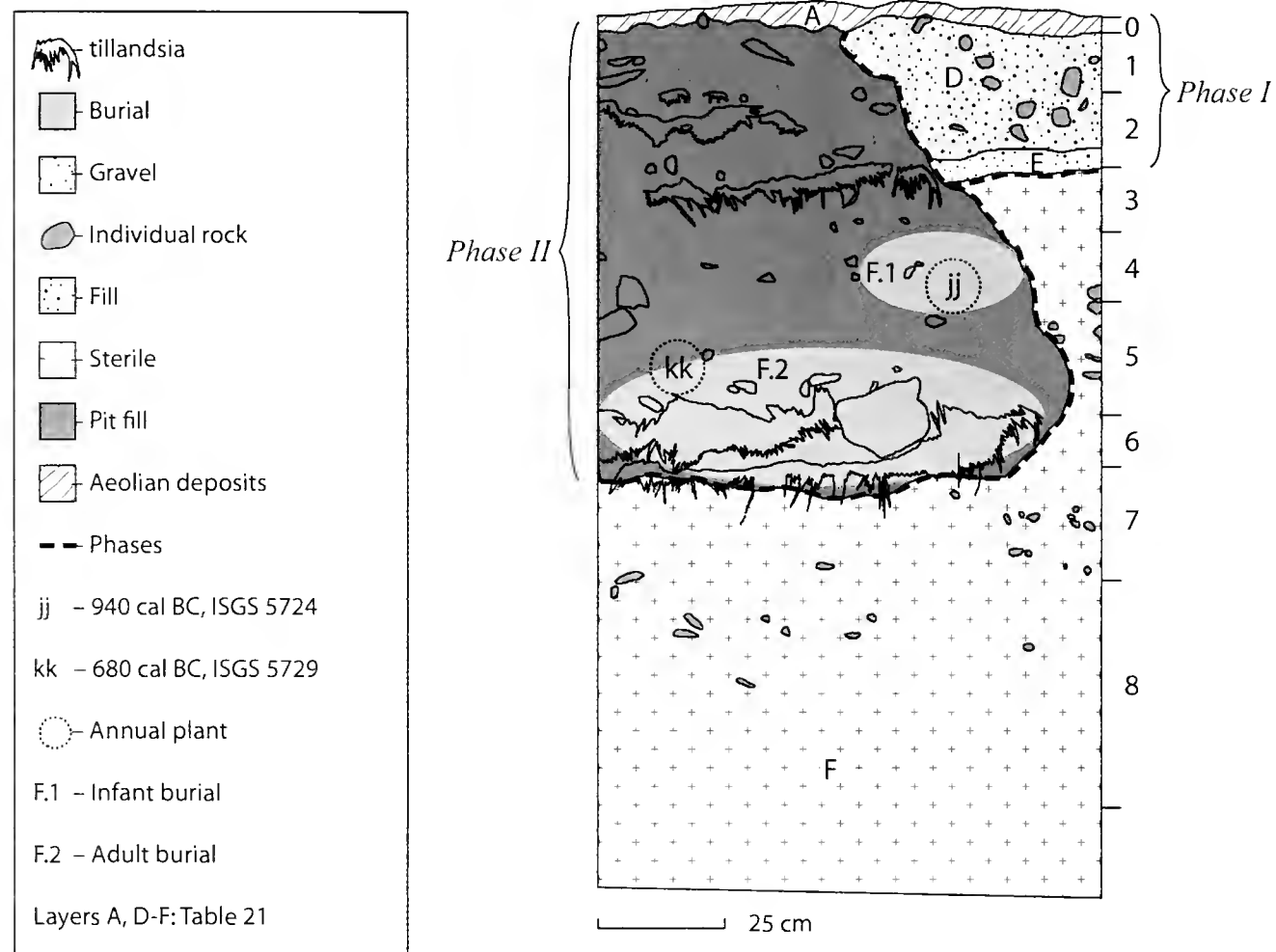


FIG. 27. Caballote, Sector F, Test Unit 1 (2004), south face.

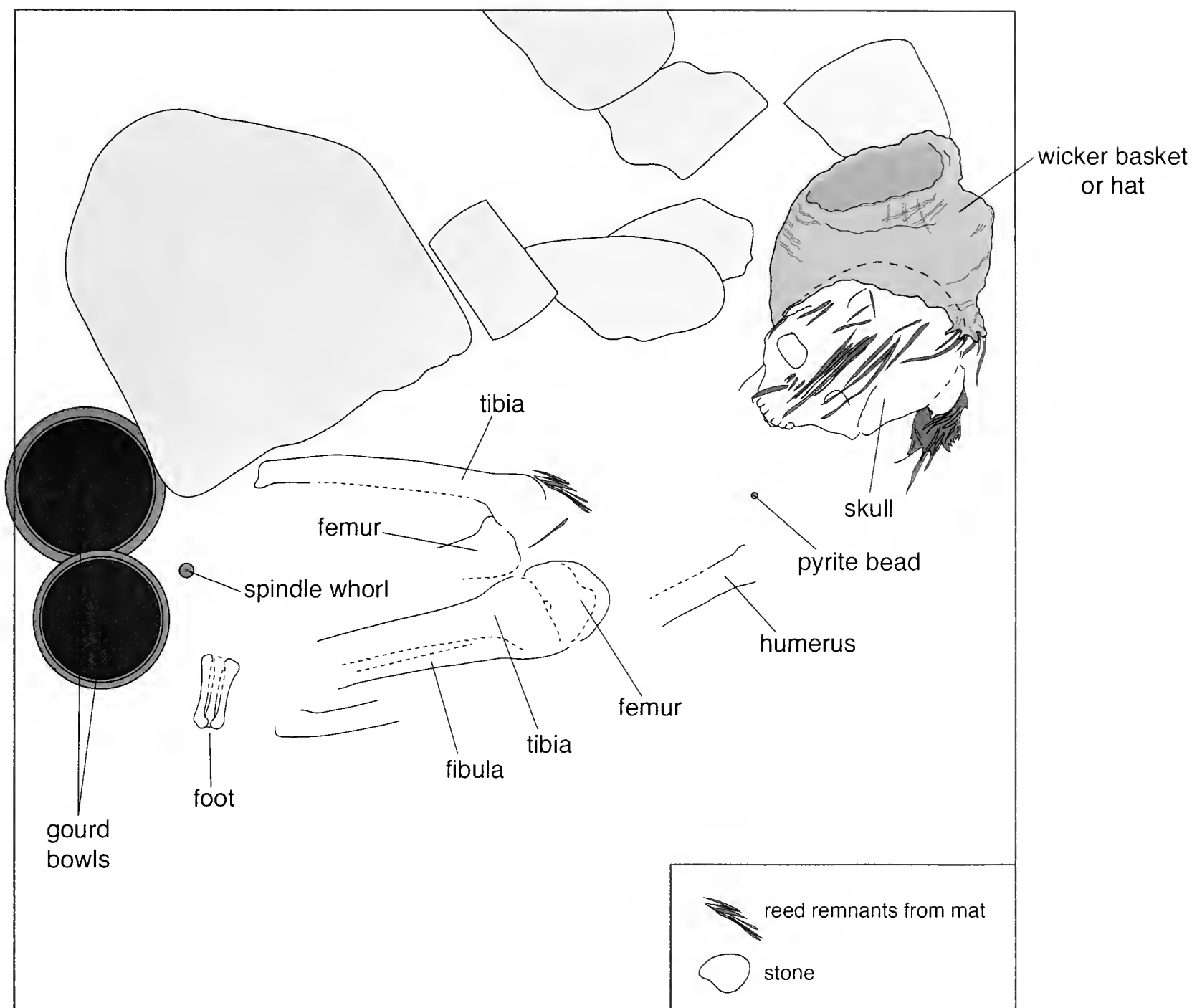
implications for political organization of the site and the region, but many more dates taken from more individual phases and construction elements are needed to examine the sequence of construction across Caballote. Any large complex site from this early time period is going to need literally hundreds of radiocarbon dates to assess internal chronology, construction sequences, and any reasonable estimate of site demography. More explicit comparison of charcoal and different kinds of annual plant fiber is needed to resolve issues of old wood and reuse of materials.

Testing in 2004 confirmed the presence of domestic and ritual architecture at Caballote. As at Porvenir, the most frequently identified architectural features were floors and platforms that varied in size and in finish. The platform in Sector A, Test Unit 4, consists of a low retaining wall with several floors constructed alongside. Platforms in Sector B, Test Unit 1, and Sector C, Test Unit 2, were the base for weaving or *shicra* workshops. The platform at the base of Sector C, Profile 2, is similar in construction, with a floor surface on top. A subsequent and much larger platform was built over the platform at the base of the profile, with Wall 1 at one side and a thick rock construction phase.

Again, floors were recorded on the upper surface of the platform.

Apart from the evidence of weaving/*shicra* workshops, functions that could be identified were limited by the extent of excavation and clearing. Elaborate construction is visible at Caballote in two places: the finely plastered bench at the bottom of Sector C, Test Unit 2, and the structure with plastered walls at the bottom of Sector B, Profile 1. The structure in Profile 1 was not excavated, and though the room was clearly identified, its purpose was not. The plastered bench is the same. It could be part of a habitation complex, perhaps even one of high status. Since this feature was covered over without being torn down, it may also be part of a ceremonial area that was covered after use (Vega-Centeno, 2010) or transformed into a larger structure (Creamer & Haas, 2008). Plastered benches are characteristic of mito temples (Izumi & Terada, 1972) that may have antecedents in the Norte Chico region (Haas & Creamer, 2010).

Perhaps more than any other site in the region, the excavations at Caballote demonstrated that there is an abundance of subsurface architecture and occupation that cannot be detected on the surface. Remote sensing technology,



Caballete 2004
Sector F
Test Unit 1
Level 7

FIG. 28. Caballete, Sector D, adult burial below infant in Test Unit 3.

such as ground-penetrating radar, might be effective in locating such subsurface structures.

Conservation and Protection of Caballete

Despite damage caused by an unsuccessful attempt at irrigating the Quebrada La Empedrada where Caballete is located, the site is one of the best-preserved complexes of monumental architecture of the Late Archaic Period in the Norte Chico. This is largely due to its monumentality, its isolation from the main roads such as the highway to Huaraz, and its location on the right margin of the valley, where no bridges cross the Fortaleza River. Despite its isolation, there are two principal threats to Caballete: looters and gravel quarrying.

The activity of looters has severely damaged the Sector C mound at Caballete, where looters have dug a hole more than 2 m deep, destroying monumental architecture. Similar damage has occurred in Sector F, where, during the 2004 field season, recent looters' holes disturbed stratified deposits

rich in botanical remains. Despite this, looting is less intensive at Caballete than at other, later sites because of the absence of ceramics, metal, and elaborate textiles that are often the focus of illegal traffic in antiquities.

The greatest danger presently comes from suppliers of construction materials who view mounds as suitable quarry areas. Mounds are targeted for quarry areas because the rock is already broken and needs only to be loaded and carried away. On at least two occasions during our 2003 field season, local residents alerted us to the presence of such persons, and we were able to protect the archaeological area from damage, such as the Sector D looting many years ago.

Cerro Blanco 1

The area around the modern settlement of Cerro Blanco is an extensive archaeological zone that has been intensively occupied since at least the Late Archaic Period. This long



FIG. 29. Photo of Cerro Blanco 1, looking west over the site.

history has resulted in a large expanse of overlapping occupations. Because there are numerous cemeteries in the area, it has also been subject to extensive looting. Even the areas of occupation that are of interest to the present project, completely lacking in pottery or burials, have been affected by the search for antiquities. The areas that remain in the best condition are those that are covered with substantial architecture since these are slower to be looted or leveled.

Cerro Blanco 1 is a group of mounds located 1.5 km northeast of the settlement of Cerro Blanco, 110 m above sea level, and approximately 10.5 km from the coast. The site is up against the slopes of the chain of hills that define the left (south) margin of the valley (Fig. 29). Cerro Blanco 1 was first recorded by Vega-Centeno (Vega Centeno et al., 1998). Construction characteristics, such as the presence of *shicra* in construction fill and scarcity of pottery on the surface or in exposed profiles, suggested that Cerro Blanco 1 dated to the Late Archaic and into the Initial Period. Sectors were established around mounds A–C, all oriented similarly toward the northwest, facing out over the valley. Sector A South includes an area of artifact scatter that may be a low mound. Looting in this sector has blurred the outline of the structure, and a flash flood washed out the area between it and Sector A. Further excavation would be needed to determine its shape. An irrigation canal runs roughly parallel to Sectors B, A, and A South about 50 m to the northwest, and a road parallels the canal beyond it.

Sector A

Sector A includes two of the mounds on the south side of the site (Fig. 30). The mound in the center is rectangular, $34 \times 33 \times 5$ m, covered by loose earth and small to medium-sized angular rock (Table 2). Some mollusk shells and a very small quantity of unpainted, nondiagnostic ceramics are present. Two looters' holes are present on this mound. In the first of these, located on the upper part of the mound, a wall of angular rock and clay mortar is visible within the looters' pit. Parts of the wall retain a coat of plaster. Some mollusk shells are also visible. The second area of looting is a trench that cuts into the mound from the side away from the modern road. In this area, a wall of large angular rock and clay mortar, also with vestiges of surface plaster is present, along with *shicra* construction fill using large angular rock. Looting has left the mound in poor condition. Radiocarbon dates ranged from the Late Archaic into the Initial Period (Table 22).

Sector A, Profile 1

Profile 1 was located on the south side of the central mound in Sector A in an area of extensive looting that left a trench 5 m long and 2 m deep, exposing several layers of construction fill. Among the materials visible were *shicra*, stone, clay mortar walls, and clay floors. The cleared profile included 29 different layers and construction elements

Cerro Blanco 1

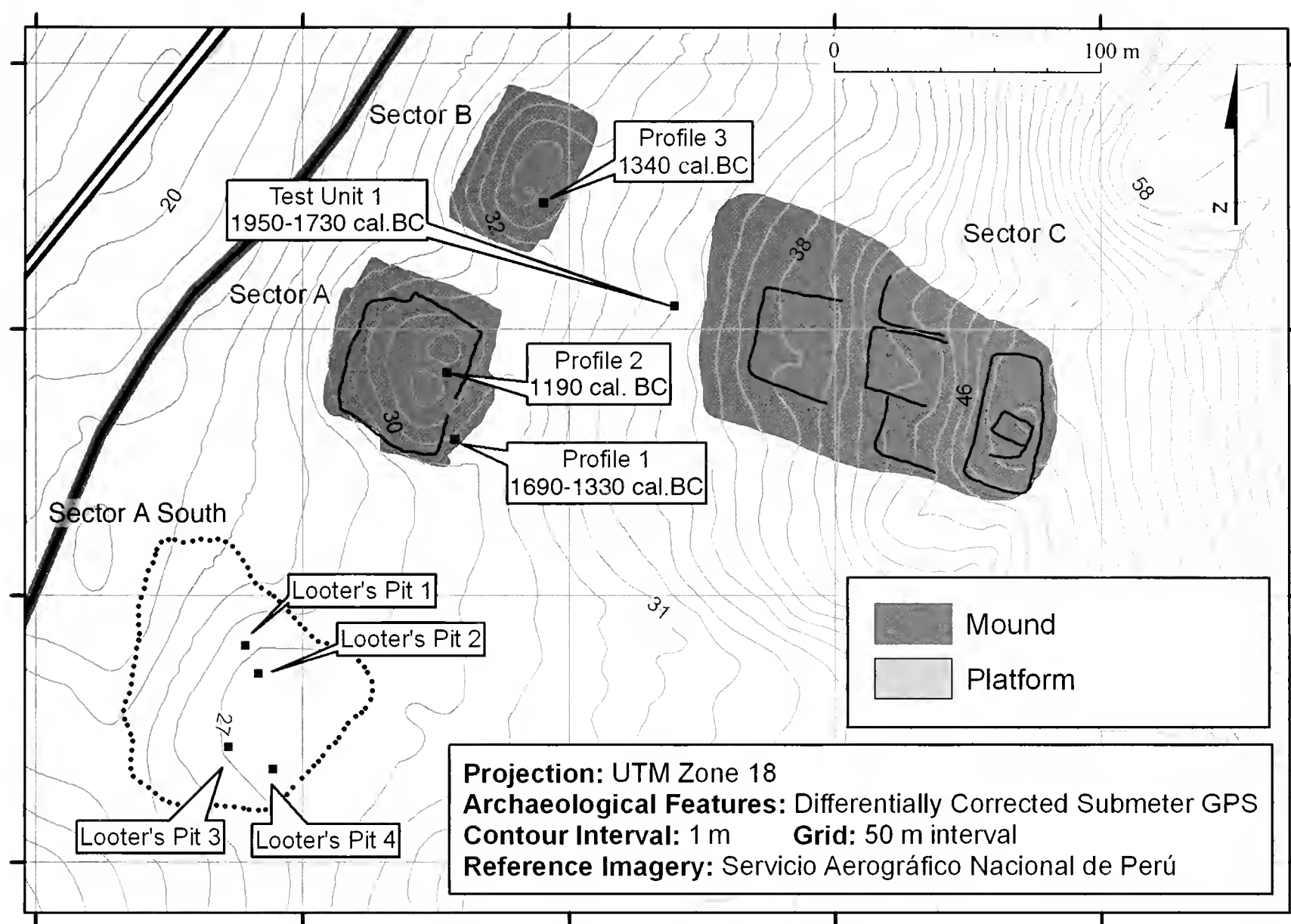


FIG. 30. Contour Map of Cerro Blanco 1.

(Table 23; Fig. 31a). The stratigraphy is more difficult to understand than elsewhere because it appears that new layers were added to the outside of the mound as well as to the center of the structure. This created some horizontal as well as vertical stratigraphy.

Two rooms and a rubble filled wall are the principal structures revealed in this profile. Building these was a major construction effort and changed the entire look of the mound in Sector A (Fig. 31b). Prior to this, the surface of this area was a low platform and more than 2 m lower than the final height of this structure. During Phase III (Table 23), the double wall and both rooms were completed. Later, during Phase II, both rooms were filled with *shicra* (Layers F, L), raising the level of the mound substantially.

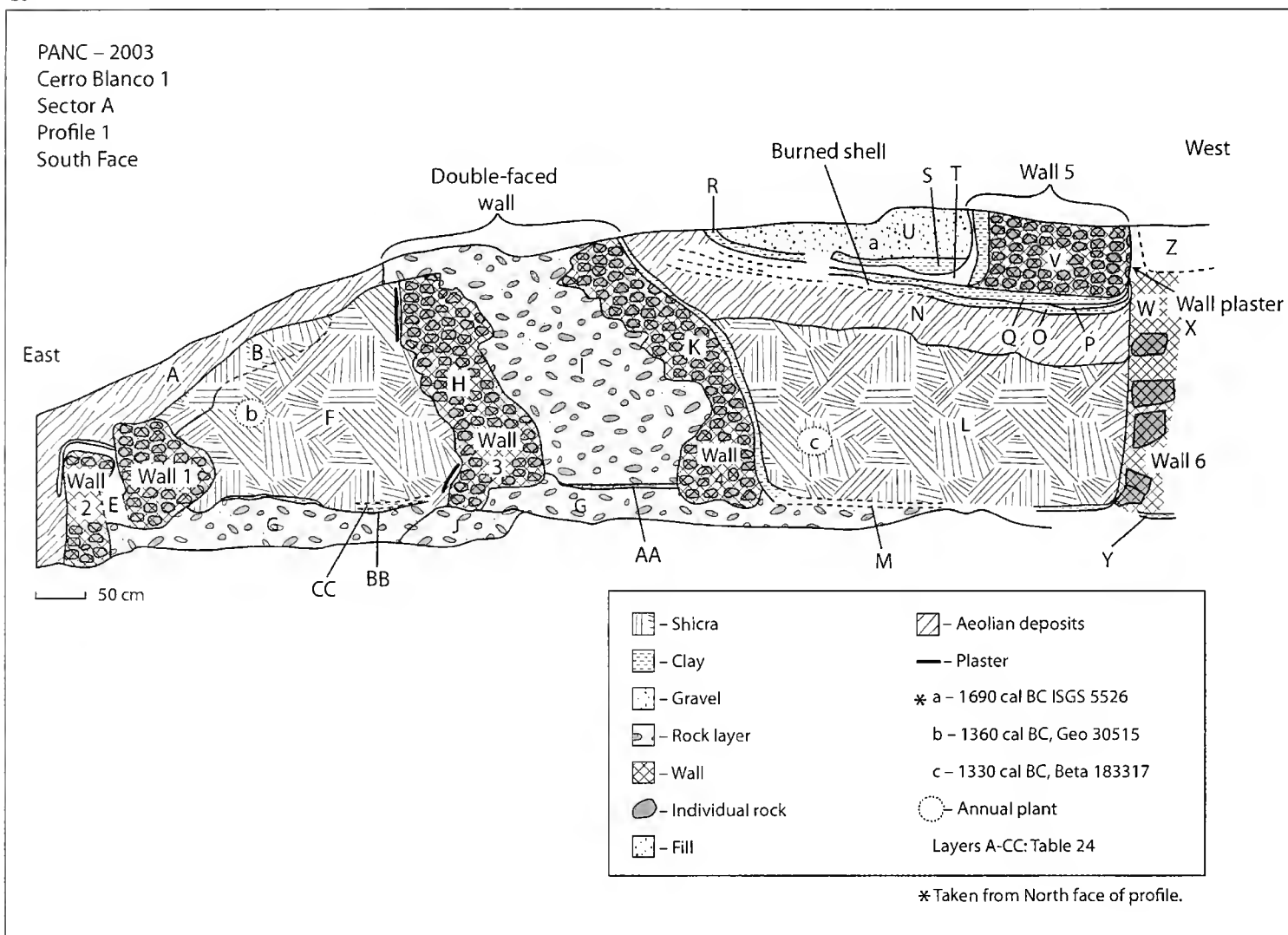
The stratigraphy in this profile shows the collapse of a huge, double-faced wall. The position of the walls and floors are evidence of a natural disaster, probably an earthquake. At a single moment during Phase II, the rubble filled double walls, approximately 2 m thick, collapsed to one side (Fig. 32). The dates from *shicra* used to fill the rooms on either side of the double wall show that it was in place after 1400 Cal BC (Table 22b, c). The profile also shows that the spaces on either side of the wall had been filled prior to the event that knocked it over because the walls lean on the *shicra* deposits (Fig. 31b, Layers A–L) that were used to fill the rooms and raise the level

of the mound. The seismic event postdates 1360–1330 Cal BC, dates obtained from *shicra* from Layers F and L (Table 22b, c; Table 23b, c).

The area was reoccupied though possibly after a hiatus in occupation indicated by the aeolian deposits in Layer N. A new room was constructed, remodeled by the addition of a wall, and then replastered, creating a series of layers of floor and wall plaster at the top of the mound. A sample of plant fiber from rocky fill above the uppermost floor dated 1690 Cal BC (Table 23a; Table 24a) and may be older fill deposits excavated and reused. However, the full range of calibrated dates between these three samples do overlap at the end of the 15th century BC.

Initial occupation of this area probably dates before 1600 Cal BC, though we cannot be sure when mound construction began. When an earthquake damaged the massive structure that comprises the bulk of the mound sometime after 1360 Cal BC, the mound appears to have been abandoned, although a later occupation was established on top of the mound. The duration of that later occupation is indicated by several episodes of floor remodeling, but it cannot be determined more precisely with the dates we now have for Sector A. Although the use of this area does fall squarely in the Initial Period, the evidence for earthquake damage and subsequent reoccupation with a smaller construction is similar to that noted at Late Archaic sites in the nearby Supe Valley (Sandweiss et al., 2009).

a



b

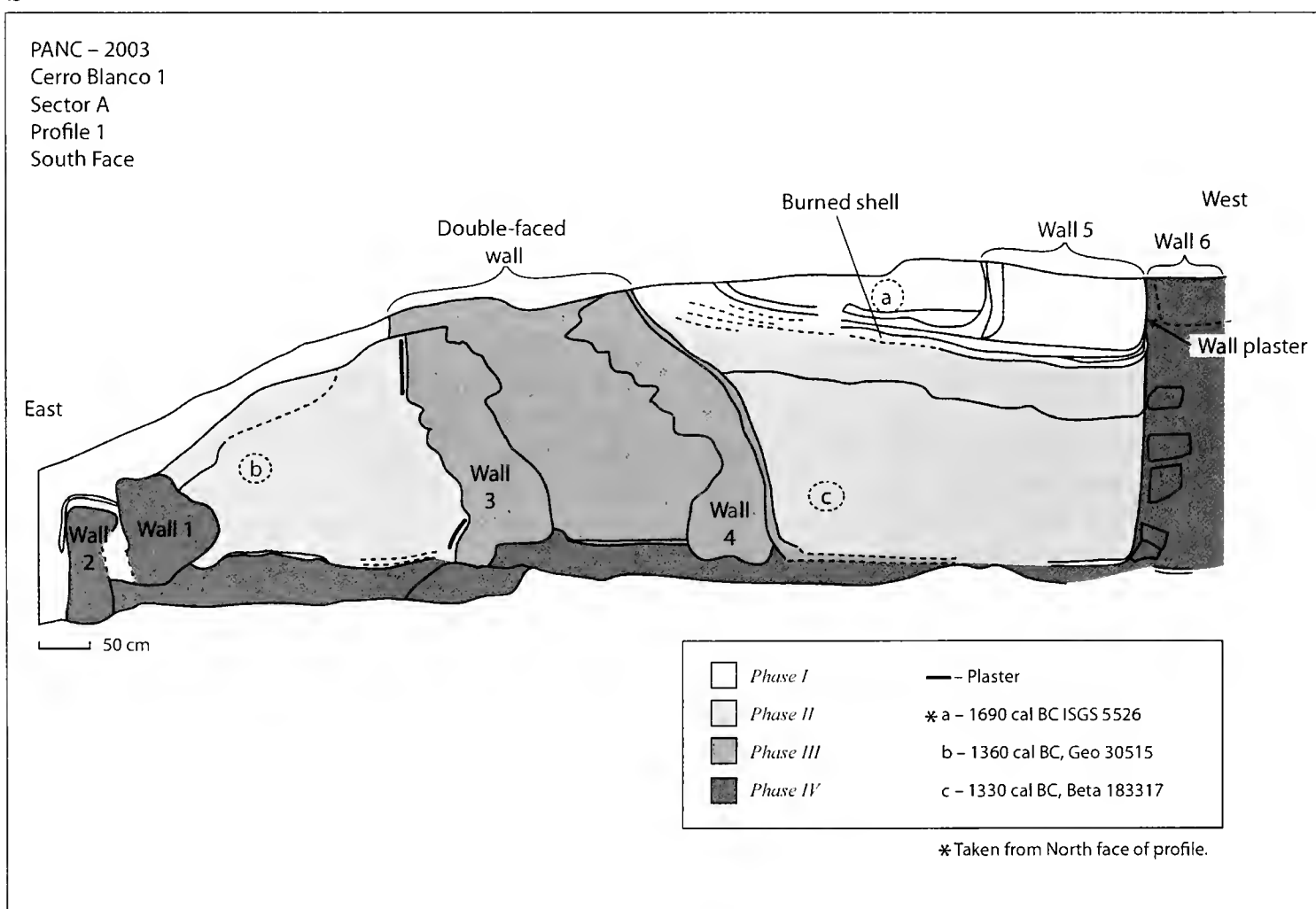


FIG. 31. (a) Cerro Blanco 1, Sector A, Profile 1, drawing showing excavated deposits. (b) Cerro Blanco 1, Sector A, Profile 1, phases.

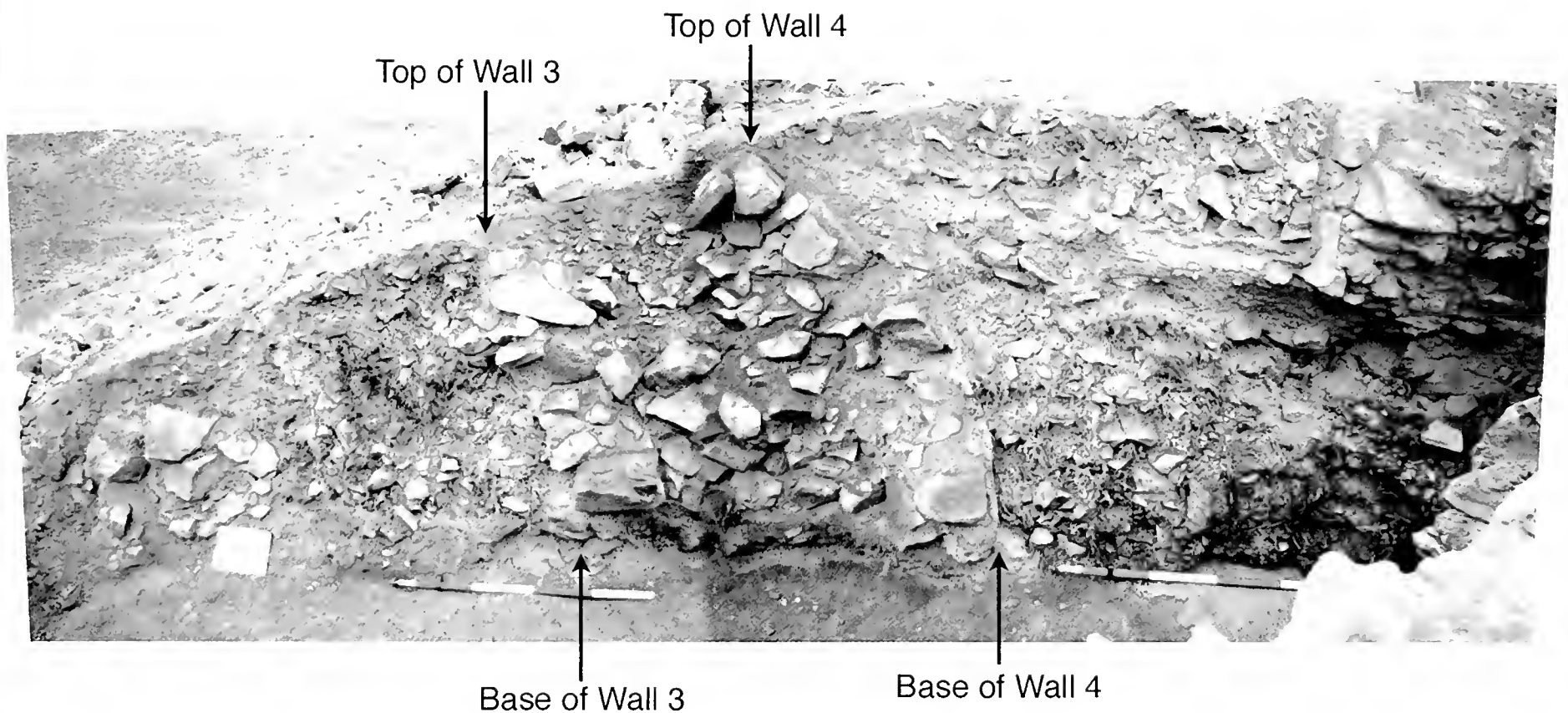


FIG. 32. Photo of Cerro Blanco 1, Sector A, Profile 1, showing wall collapsed during an earthquake.

Sector A, Profile 2

Profile 2 was located at the top of the central mound in Sector A. This was another area that had been exposed by looters, leaving a hole 1.5 m in diameter. In the north and south walls of this hole, it was possible to see the techniques and process of construction (Table 24; Fig 33). The surface of the mound was covered by debris from looting piled around the mouth of the hole, and below this stratigraphic units were identified in the profile of the looted pit.

The cleared area revealed three episodes of use. The oldest of these visible, Phase III, consisted of a substantial layer of *shicra*. A sample from the layer of *shicra* construction yielded a date of 1190 Cal BC (Table 24d). Gravel was added (Phase II) over the *shicra*, and use surfaces of clay were laid down above that layer (Phase I). Thus, Phase II may indicate a break in occupation or may be a leveling of the surface for construction. Walls 1 and 2, built of rock and clay mortar on the upper use surface, are grouped with the floors as Phase I, as the walls and floor surfaces are likely to be related construction. However, there was no surviving floor or wall plaster that securely demonstrated their connection.

Clearing the Sector A looters' pit, Profile 2, provided another glimpse of the interior of the Sector A mound. The floors and wall segments in this area are stratigraphically comparable to the uppermost deposits in Profile 1 (Floors O–S) since in both locations deposits of *shicra* are covered with a layer of gravel and then clay floors and walls. The date of 1190 Cal BC from Layer D comes from a *shicra* deposit that is probably comparable in age to the sample from Profile 1 that yielded a date of 1330 Cal BC (Table 22c). These dates overlap in the 1σ range, indicating that they may represent contemporaneous deposits.

Sector A South

This sector is a low irregular-shaped area on the south side of Sector A (Fig. 29) that may have been a mound. The east

margins are at nearly right angles and measure 32 and 20 m, but the rest of the mound has no clearly defined outline. It is possible that this was a rectangular mound and that half of the exterior has been destroyed by looting and mining of material for road building in the area in addition to the washout already noted. The mound area is about 3 m high and is oriented 280° (northwest). This sector is covered by wind-borne soil and angular rock, with a few fragments of ceramics on the surface. Four looters' holes have been excavated in this mound. In these holes were fragments of nondiagnostic ceramics and trash with a large quantity of mollusk shells.

The looters' holes were numbered 1–4, with holes 2 and 3 yielding the most information. In hole 2, a wall of large angular rock without plastered surfaces was visible. In hole 3, *shicra* fill was visible along with a wall of medium-sized angular rock in clay mortar with evidence of surface plaster. Associated with the plastered surface were two floors, and below the floors was a thick layer of trash with a large number of mollusk fragments and a few fragments of nondiagnostic ceramics. Mound 3 is in a poor state of preservation due to the number of looters' holes that have been made in the mound. A radiocarbon date of 1190 Cal BC (Table 22e) was obtained from a *shicra* sample in looters' hole 2. The date is consistent with the others from Sector A, also within the Initial Period. The date suggests that these small mounds were built much later than other sites in the region with a multimound layout. In the Norte Chico, Initial Period sites are both fewer in number and not as large as Late Archaic sites with monumental architecture. In other areas, Initial Period sites are far larger than anything previously recorded, including the largest sites of the Late Archaic. This suggests that the balance of power was shifting away from the Norte Chico after the Late Archaic, though the pattern of mound construction did not disappear entirely, as we see by the presence of these smaller mounds with an Initial Period date.

PANC – 2003
Cerro Blanco 1
Sector A
Profile 2
South Face

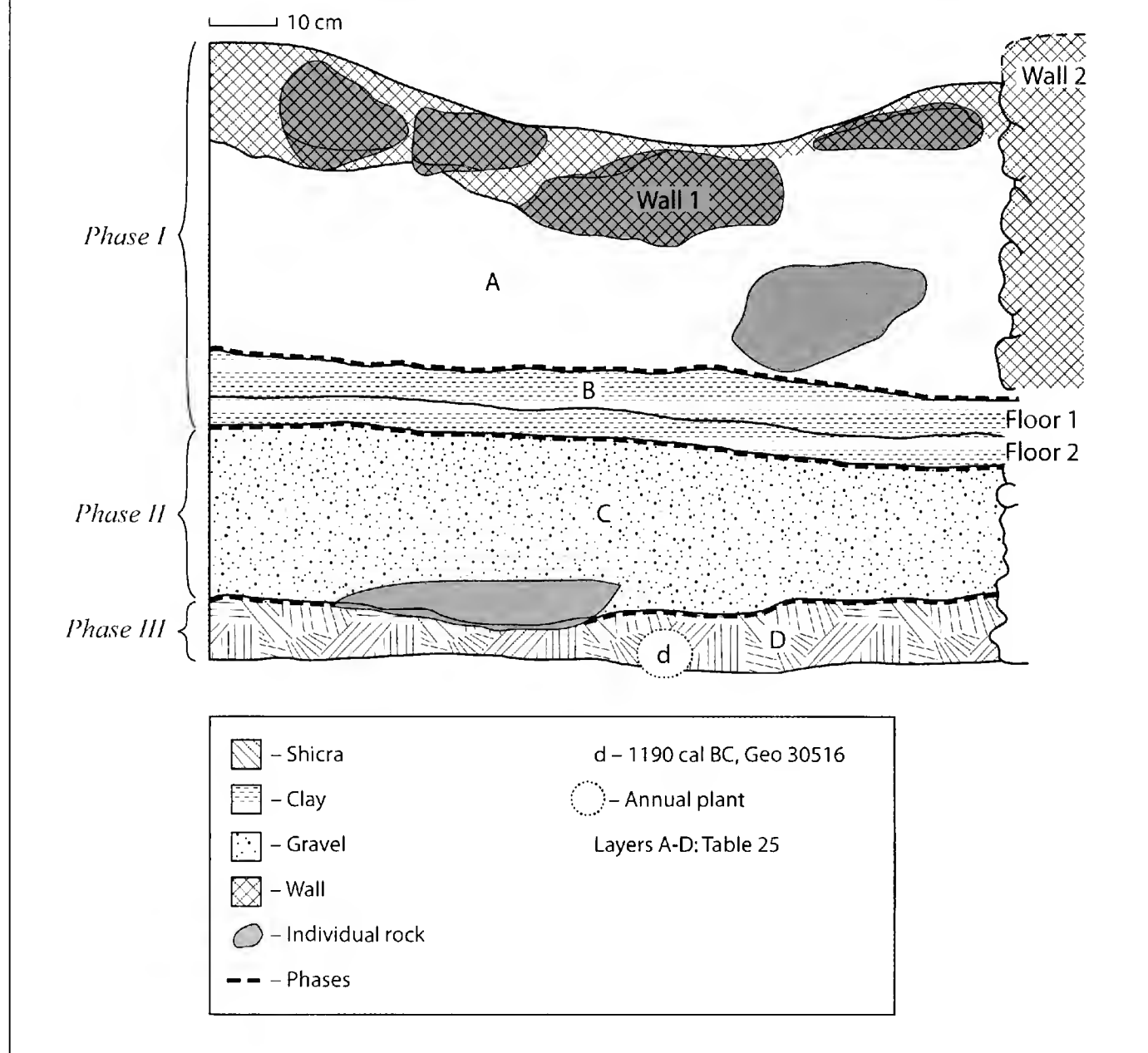


FIG. 33. Cerro Blanco 1, Sector A, Profile 2.

Sector B

Sector B includes the north end of the site and Mound 1, a rectangular mound 29×20 m with a maximum height of 5 m and an orientation of 320° . The mound is covered by soil and small to medium-sized angular rock. Some mollusk fragments are present, along with a small quantity of ceramics on the lower slopes of the mound. No diagnostic sherds were found during our visit in 2003. The upper part of the mound has been subject to looting.

Sector B, Profile 3

Profile 3 was located in the Sector B mound where we took advantage of a looters' hole, clearing it to record the stratigraphy visible in the walls (Fig. 34). Looting had left exposed stratigraphy that permitted us to record several construction phases (Table 25). An area 2×2.3 m was cleared.

In the process, a variety of cultural material was collected, including ceramics, lithics, mollusks, textile fragments, cane fragments, and *shicra* in its original context. Two phases of use are visible: an upper floor created over a layer of gravel and a series of floors at a lower level that may include the corner of a room. The plastered surface turned upward, and although wall material was not identified, this may indicate the connection between a wall and floor.

A layer of rock and *shicra* below the floors recorded represents an episode of construction, yielding a date of 1340 Cal BC (Table 22f). The looters' pit did not extend to the base of the mound, so it is not known whether this was the first phase of mound construction or whether there are earlier occupation surfaces and construction phases below this one.

The construction methods in the Sector B mound are similar to those in Sector A, and the single date from this mound falls within the range of those in Sector A. Since the two mounds are similar in size and placement, they are likely to have been

PANC – 2003
Cerro Blanco 1
Sector B
Profile 3

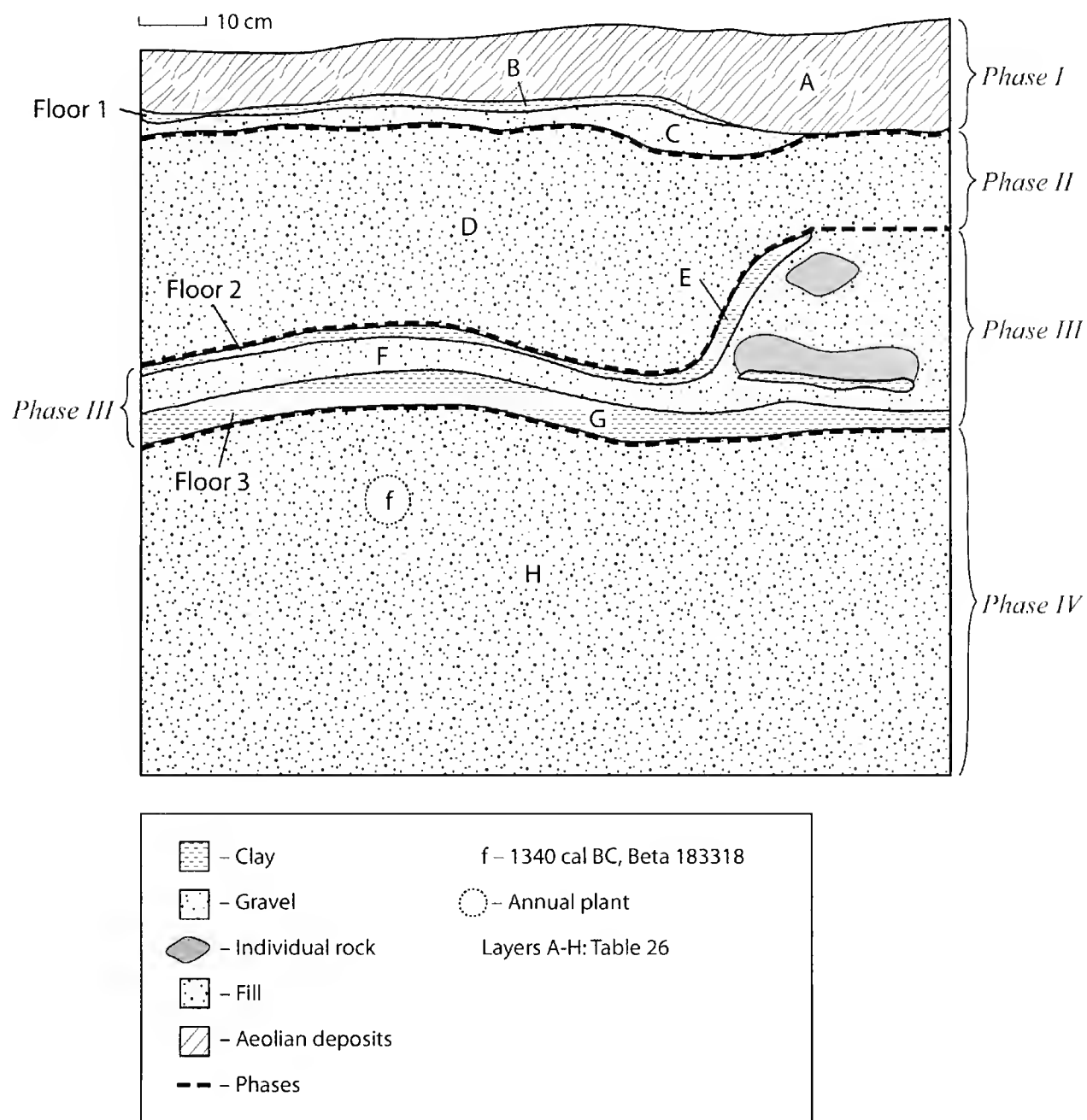


FIG. 34. Cerro Blanco 1, Sector B, Profile 3.

built at approximately the same time during the Initial Period, around 1340 Cal BC (Table 22f).

Sector C

Sector C is located to the east of Mounds 1–3, separated from them by about 60 m, slightly farther up the slope of the chain of hills that borders the valley. This is a rectangular mound $73 \times 42 \times 5$ m, oriented 340° . Construction of the Sector C mound took advantage of the slope of the hill to achieve its total overall height. Thus, the labor invested here was substantially less than that used to construct some of the mounds at other sites that did not use existing hills to boost their height. On the side of the Sector C mound toward the valley are two terraces in a steplike layout that follow the slope of the hill. Both the mound and the terraces are covered by soil and some small and medium-sized angular

rock. A few mollusk shells and a few nondiagnostic ceramic fragments were also present. This mound is in a good state of preservation because looting has not affected it as extensively as the other mounds at Cerro Blanco 1. As a result, there was no visible damaged area that could be used for excavation. A single test unit was excavated in front of the mound in an area of surface trash.

Sector C, Test Unit 1

This unit is located 10 m from the front terrace of the mound, between Sectors B and C. Patches of dark soil and small shell and lithic fragments were observed on the surface, possibly indicating a habitation zone (Fig. 35). The excavation revealed a series of irregular deposits of construction debris or building materials along with fill containing a mix of shell, lithics, plant remains, textile

PANC – 2003
Cerro Blanco 1
Sector C
Test Unit 1
West Face

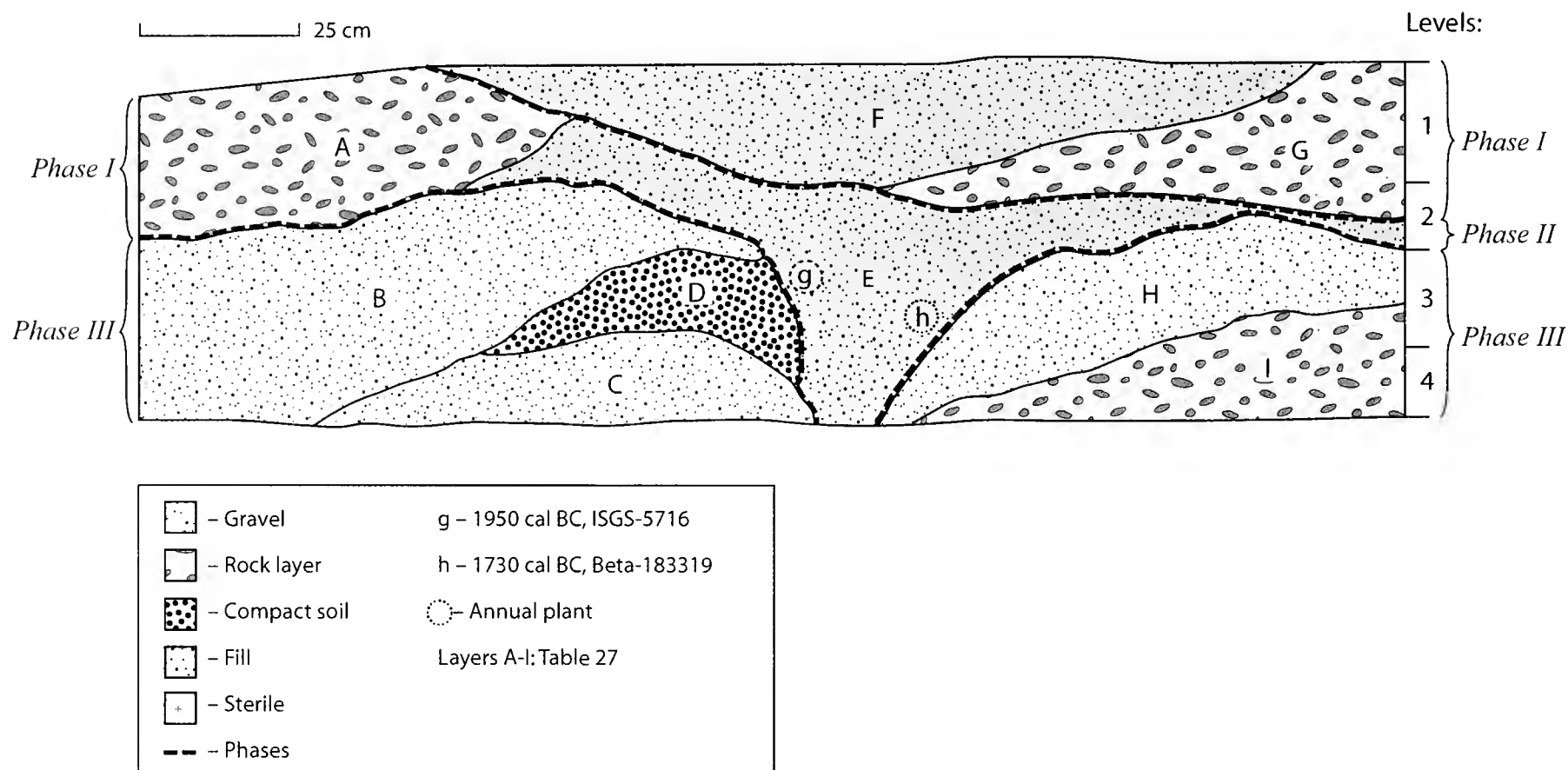


FIG. 35. Cerro Blanco 1, Sector C, Test Unit 1.

fragments, and charcoal in a matrix of ash, rock, and soil (Table 26). The area seems to have been a midden although not consistent in composition. The shape of the excavated layers suggests that the midden was discarded in a depression or a hole completely filled by the end of Phase II. Phase I represents a subsequent episode of use of this area as a midden. Two samples of plant fibers from Level 3 within the midden yielded dates of 1950 and 1730 Cal B.C (Table 22g, h).

The excavated levels revealed indirect evidence of occupation somewhat earlier than the other sectors of Cerro Blanco 1. Occupation may have been nearby, and the midden contents included a range of materials associated with habitation, including subsistence remains, textiles, and a small number of unslipped and dark red slipped nondiagnostic ceramics. The shallow deposits and lack of architecture suggest that this area was utilized for trash disposal but did not have any other long-term use. The radiocarbon dates from Level 3 of the excavation date to the Terminal Archaic Period or the early Initial Period, the latter date suggested by the presence of ceramics in each excavated level.

Cerro Blanco 1 Discussion

Occupation of Cerro Blanco 1 includes two phases: the transition from the Late Archaic to the Initial Period and

later in the Initial Period. Three dates from Sectors A and C range from 1950 to 1690 Cal BC, while five additional dates from Sectors A and B range from 1360 to 1190 Cal BC, time ranges that do not overlap statistically (Table 26). The arrangement of structures at the site is not at all clear since the entire zone has been looted for some time. Sector A South may have been a mound that has been looted. The Sector C mound may be of a different date as well, as no samples for dating could be obtained. Although Cerro Blanco 1 does not include a circular court (a hallmark of Late Archaic sites), the rectangular terrace in Sector C holds the position of a circular court in a Late Archaic site (Fig. 30). The stepped arrangement of terraces against the hillside in Sector C creating the appearance of a mound, along with its central walled rectangular court, is a layout known from other Late Archaic and Initial Period architecture (see the section “Cerro Blanco 2” below), including Huaynuna, where a mound was built against a hillside (Pozorski & Pozorski, 1987). At Tortugas, a nonresidential structure was built “taking advantage of the rocky outcrop to enhance the structure’s height” (Pozorski & Pozorski, 1987:47), while Salinas de Chao consists of a series of terraces transforming a hillside into a mound, along with a sunken court and rectangular plaza (Moseley, 1992: 111).

Sector A South, Sector A, and Sector B may or may not be related to the Sector C mound. Each of these structures was

Cerro Blanco 2

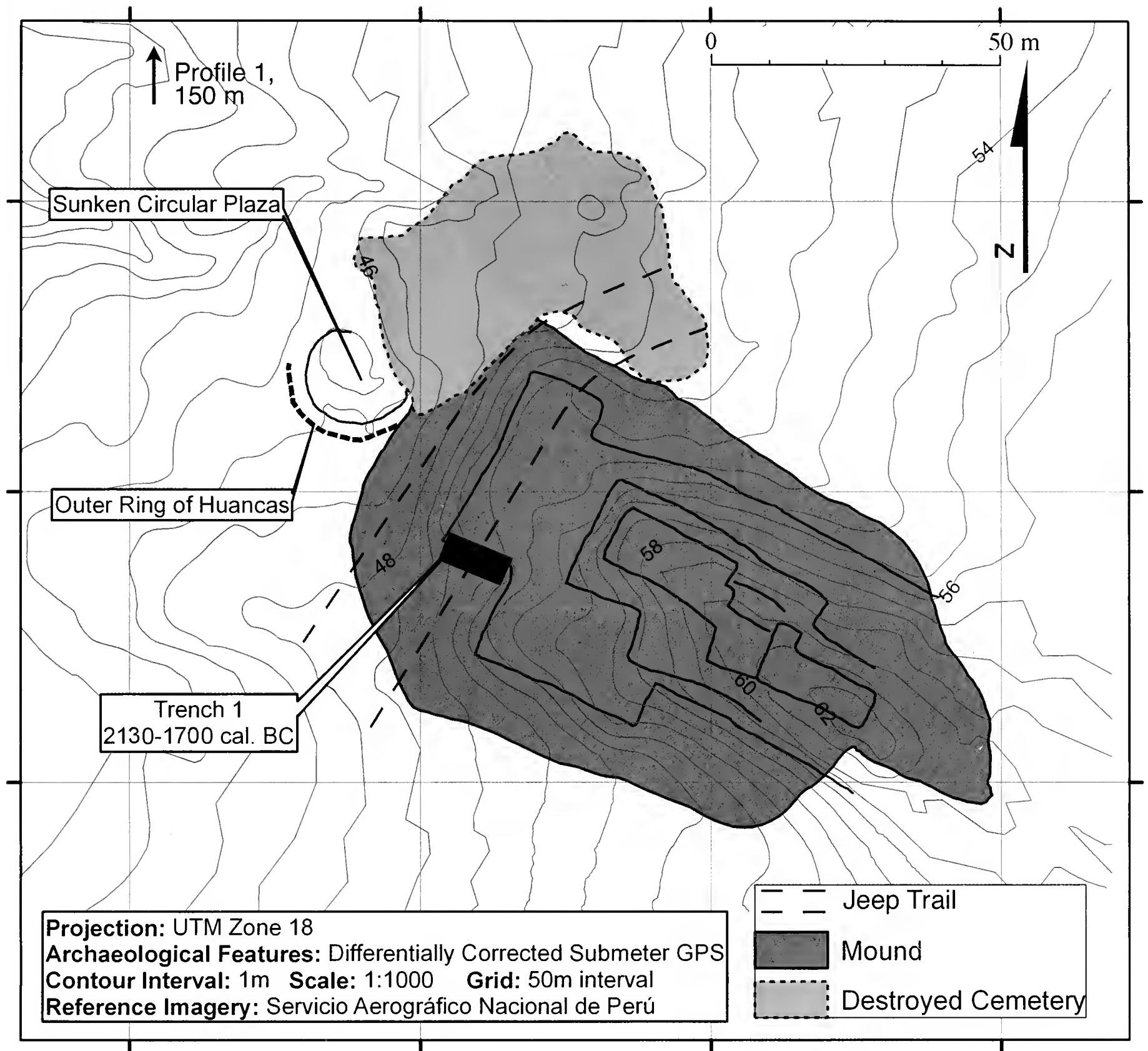


FIG. 36. Cerro Blanco 2 contour map showing plan of site and excavated and sampled units.

built using *shicra* bags, a common construction technique during the Late Archaic. However, the later dates for these mounds and the presence of a few ceramics indicate an Initial Period occupation as well. The available dates from Cerro Blanco 1 indicate that the locality was in use during the transition between the Late Archaic and the Initial Period and make it an excellent laboratory for studying this important period of transition. The extensive profile of the looted area in Sector A revealed both earthquake damage and reoccupation at Cerro Blanco during the Initial Period. The reoccupation of Cerro Blanco shows continuity in occupation in the region, although Initial Period structures were smaller than the preceding Late Archaic mounds even before the earthquake recorded at Cerro Blanco 1.

Cerro Blanco 2

Cerro Blanco 2 displays characteristics of the Late Archaic Period, including a mound associated with a sunken circular court (Fig. 36; Fig. 37). The circular court was used as a cemetery by later occupants in the area after the mound was no longer in use (Haas & Creamer, in press). These burials and subsequent looting of the burials in historic times have destroyed more than two-thirds of the circular court. In addition, a rough vehicle and cattle track approximately 3 m wide crosses the margin of the main mound, damaging part of the structure. The track appears to have formed during a period when rock was removed from the mound, probably for use in construction. The entire zone between the main mound



FIG. 37. Photo of Cerro Blanco 2 showing mound and circular court from the north.

and the agricultural fields some 100 m distant was used as a cemetery in ancient times, and all this area has been heavily damaged by looting.

At Cerro Blanco 2, a trench 3×12 m was cleared. Trench 1 was located on the south side of the mound in the area damaged by vehicles extracting rock. In addition, the side of a looters' hole was cleared and a drawing made, designated Profile 1, that revealed a sequence of stratigraphy and yielded samples for dating without the enlarging the area excavated (Table 27).

Trench 1, Main Mound

The main mound at Cerro Blanco 2 was constructed as an extension from a natural hill facing the river, $120 \times 68 \times 4$ m with a circular court 20 m in diameter. The stratigraphy of the eastern half of the trench shows layers of deposition built up on an inclined surface (Fig. 38a; Table 28). The technique of using a natural hill to achieve the appearance of increased mound height was common among Late Archaic builders. The final form of the mound was achieved by construction of a series of retaining walls (Fig. 38a, b) that were filled to create terraces.

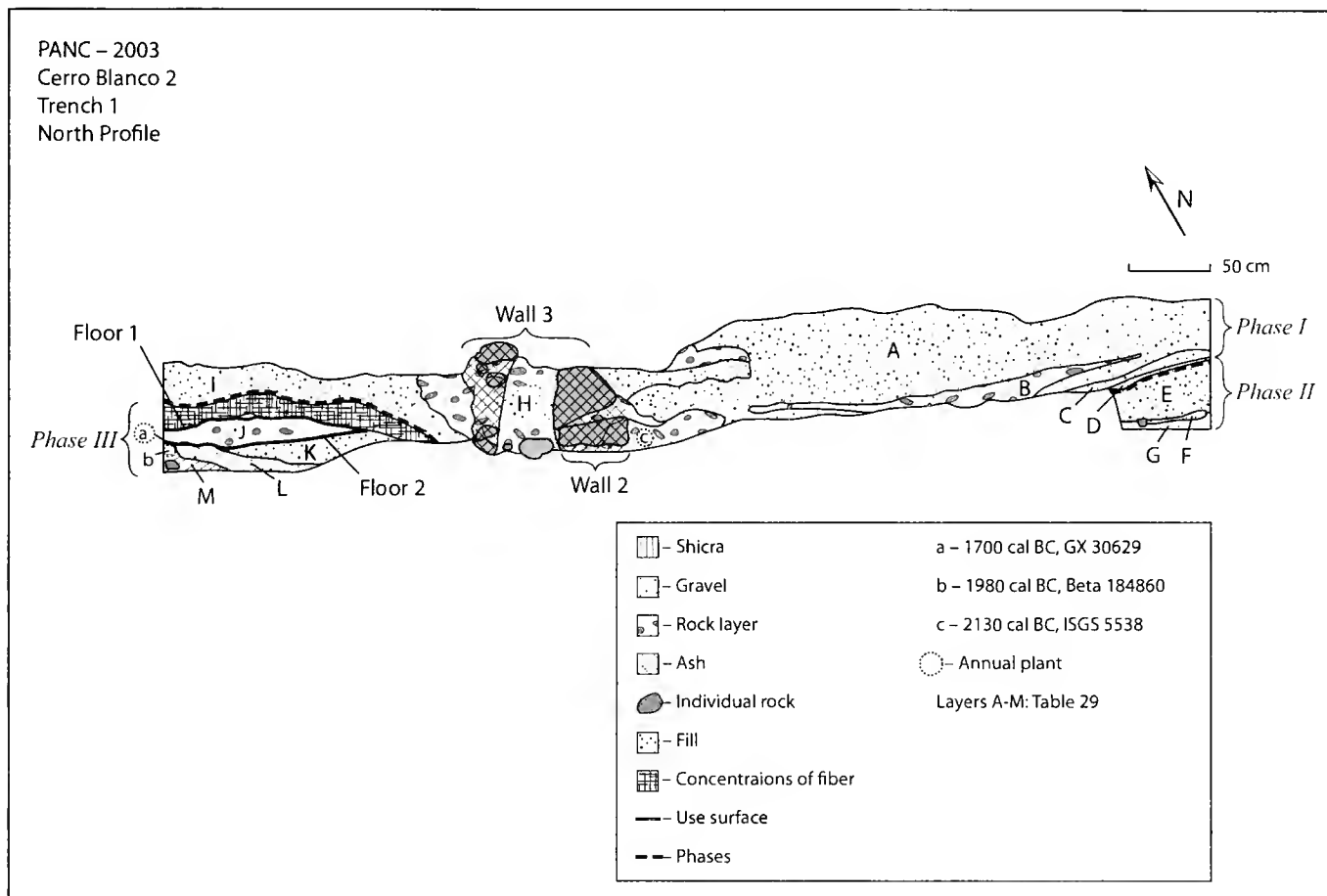
Plant fibers collected from the clay mortar at the base of Wall 3 were dated 2130 Cal BC (Table 27c). Two additional dates were obtained from surfaces below the terrace formed by Walls 2 and 3, at the base of the mound, 1980 and 1700 Cal BC (Table 27a, b). Together, these indicate that occupation in

this part of the site began before 2100 and ended at some point in the Initial Period after 1600 BC, based on the absence of walls or floors higher in the profile than Wall 3. Trench 1 is a small sample of the entire site, and there is the possibility that occupation continued at a later date elsewhere. However, the very small quantity of nondiagnostic ceramics identified from the trench and the complete absence of ceramics from the site surface would indicate that the Initial Period occupation was limited.

In the profile drawing (Fig. 38a), the use surfaces in the western part of the trench are not visible due to the large number of rocks that were disturbed at some point after the end of the occupation, possibly very recently. In addition, the uppermost of the plaster-coated floors is not visible in the profile, though the area of dense fiber in Layer I may also indicate a floor (Fig. 38b).

Radiocarbon dates suggest that Wall 2 was built around 2100 Cal BC and that the floors at the base of the terrace date slightly later, around 2000 Cal BC (Fig. 38a; Table 28). Ceramics were found in the lower segment of the trench west of Wall 2, yet twined textile fragments were recovered from both sections of the trench. Based on this information, the initial occupation of Cerro Blanco 2 dates to the Late Archaic Period, and the site continued to be occupied into the Initial Period, as indicated by the presence of a small number of plain red ceramics and the radiocarbon date of 1700 Cal BC from material just under Floor 2.

a



b

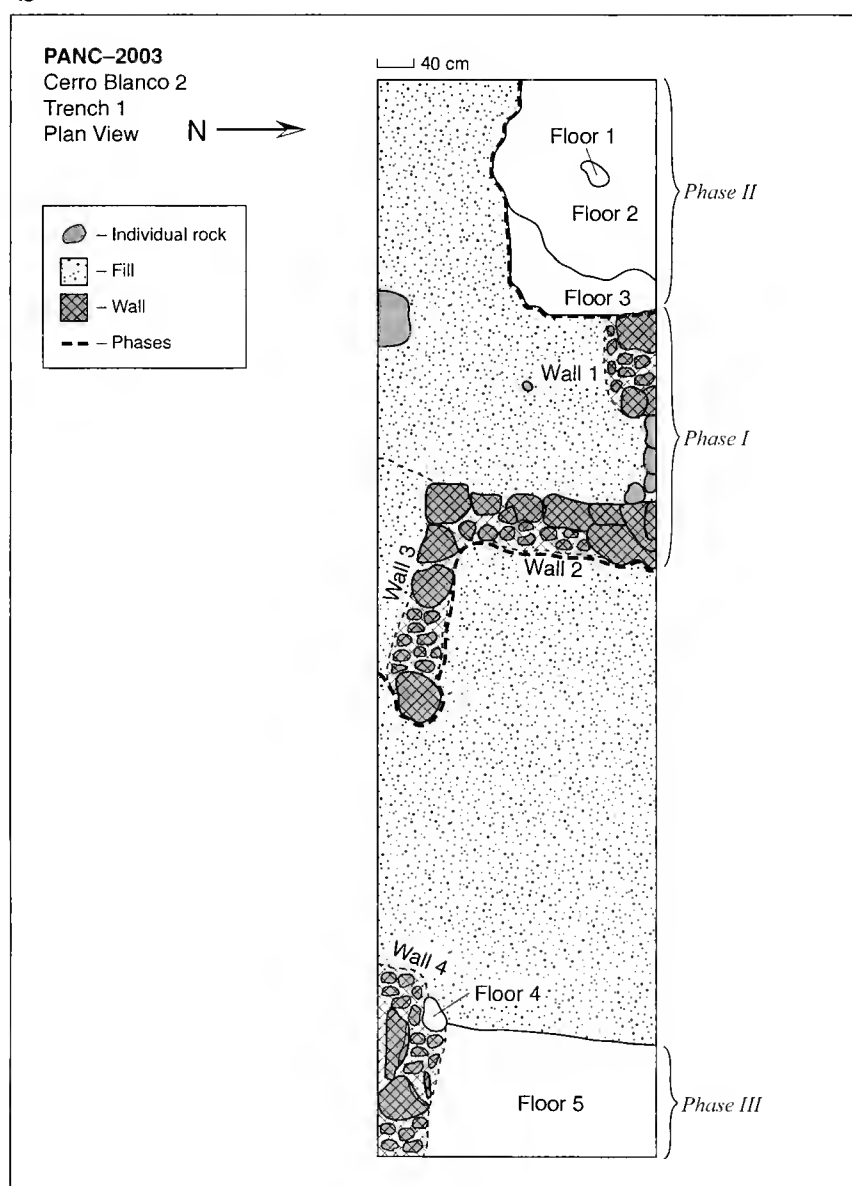


FIG. 38. (a) Cerro Blanco 2, Trench 1, profile. (b) Cerro Blanco 2, Trench 1, plan view.

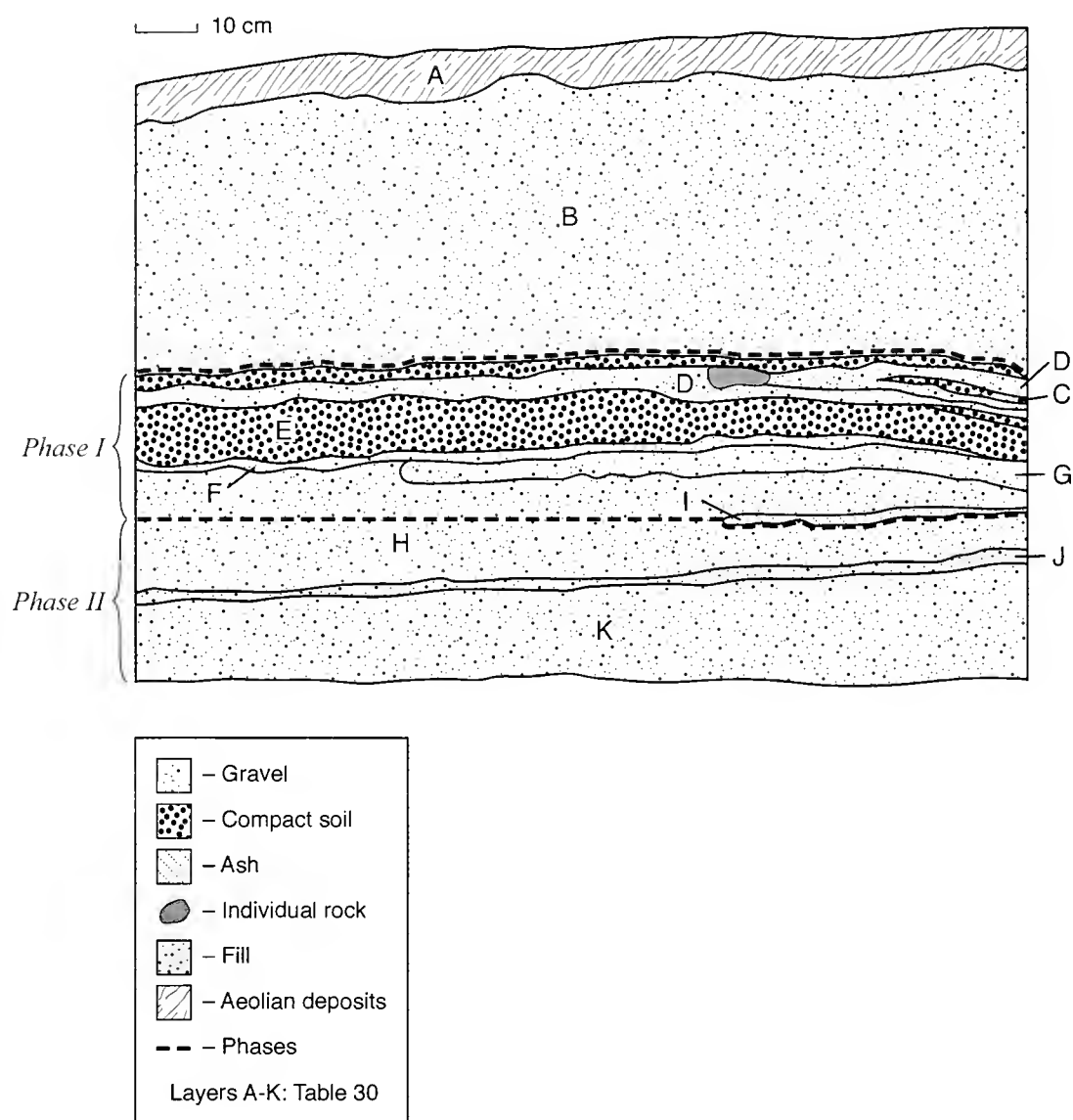


FIG. 39. Cerro Blanco 2, Profile 1, drawing.

Cerro Blanco 2, Profile 1

Profile 1 was located 150 m north of the main mound in one of the largest and deepest looters' holes we identified, more than 2 m deep. This looters' hole cut through cultural levels, including layers of trash. The east side of the hole was cleared and drawn to verify whether a level of cultural deposition dating to the Late Archaic Period could be identified (Fig. 39).

Four different layers were identified that may indicate occupation (D, G, I, J), each consisting of compact materials. The layers were discontinuous, however, not extending all the way across the cleared profile. Since the surrounding area is a cemetery, these layers may possibly be associated with interment ritual, each layer associated with a particular interment episode, forming a packed surface around the interment spot that did not extend more widely (Table 29). The presence of a small quantity of ceramics throughout the cultural remains of this profile points to an Initial Period or later occupation. Either the Late Archaic component was less extensive around the mound than expected, or it was concentrated in another part of the site. The profile was excavated well below the base of the cultural materials to see whether there could have been deep flood deposits covering earlier occupation, and none were encountered. Such flooding

is also unlikely because the circular court is still visible, and flooding would have affected the entire area, filling the circular court to some degree.

It appears that after the occupation of Cerro Blanco 2, the circular court was a favored spot for burials. The use of circular courts at Late Archaic sites for cemeteries in later generations has been observed at other sites, including Porvenir and Upaca (Creamer et al., 2007; Haas & Creamer, in press). One scenario for this area is that at different times, groups of people visited Cerro Blanco 2 to bury an individual in the circular court, perhaps as recognition of an ancestral connection to the site. On the occasion of a burial, in addition to the digging of the pit, interment may have been accompanied by ritual, food preparation, and feasting. Each burial event would have resulted in the creation of a compact use surface in the immediate area surrounding the interment. Two such events may be visible in Profile 1 in Layers D and G, while smaller and less compact deposits, related to events that took place farther away, are marked by deposits that are smaller, such as the fire indicated by Layer I, or by more diffuse deposits, such as Layer E.

In the case of Layer E, it is not as clear whether this deposit, thicker than the others and with only a small quantity of cultural material, accumulated from the excavation of a burial

pit at a distance or whether this layer shows wind, water, and foot traffic buildup of soil over the centuries between occupation events at the site.

Cerro Blanco 2 Discussion

Radiocarbon dates from Cerro Blanco 2 come from three contexts. Plaster covering Wall 2, a retaining wall, provided a date for construction of the mound, 2130 Cal BC (Table 27c), while the other two samples yielded dates for occupation on the terrace below the retaining wall, 1980 and 1700 Cal BC (Table 27b, a). These dates suggest that the mound at Cerro Blanco 2 was built around 2100 Cal BC and may have continued to be occupied for more than 400 years. Even after the mound was no longer used, people came to the site to bury their dead within the circular court.

Cerro Blanco 2 is only about 2 km from Cerro Blanco 1. The sites are similar in overall size and in their later reuse as cemeteries. The two sites differ, however, in the number and arrangement of structures and the courts. Cerro Blanco 1 consists of at least four mounds, three small mounds (including one that is completely destroyed), and a larger rectangular structure built out of the hillside. There is evidence for a small court at the base of the rectangular mound at Cerro Blanco 1, though it does not appear to be either sunken or circular. Cerro Blanco 2 also consists of a large rectangular structure built out of the hillside and a distinct circular court, though it has been largely destroyed by later burials and their subsequent looting. Smaller structures like those identified at Cerro Blanco 1 are absent. There is considerable similarity between the structures and layout of Cerro Blanco 1 and other Late Archaic sites, such as Cerro Lampay (Vega-Centeno, 1995) several kilometers to the west in the Fortaleza Valley and Cerro Colorado in the Supe Valley to the south (Shady, 2004).

Cerro Blanco 1 and Cerro Blanco 2 appear to be sequential occupations according to the radiocarbon dates obtained from each: 2120–1680 Cal BC at Cerro Blanco 2 and 1950–1160 Cal BC at Cerro Blanco 1. The date ranges overlap at the 2σ range, 2210–1520 Cal BC at Cerro Blanco 2 and 1890–970 Cal BC at Cerro Blanco 1, giving the overall impression that these occupations were sequential. It is even possible that Cerro Blanco 1 replaced Cerro Blanco 2 during the transition away from the Late Archaic pattern after 2000 BC. Both sites are closely spaced and show occupation extending across the transition from the Late Archaic to Initial Period and reinforce the fact that the area was not completely abandoned at the end of the Late Archaic but continued to be occupied on a small scale during the Initial Period.

Huaricanga

Huaricanga is a large Late Archaic site covering an area of 100 ha and located 25 km from the coast. The main Late Archaic occupation, Sector C, is divided from the rest of the site by the Pativilca-Huaraz highway and consists of one central mound complex (C1), $285 \times 100 \times 15$ m, the largest Late Archaic construction in the Fortaleza Valley. Smaller auxiliary mounds parallel the main mound, including C2, $150 \times 41 \times 7$ m, and a small mound (C3) $53 \times 38 \times 4$ m with a circular court 15 m in diameter (Fig. 40; Fig. 41). A small circular court is located

in Sector B, and a second small circular court is associated with a low mound complex on the south end of the site. There are some surface indications of a third, large circular court on the north side of the main mound.

Sector A

Sector A, adjacent to the Late Archaic complex, is the Initial Period/Early Horizon site of El Castillo de Huaricanga (Authier, 2012). The three principal mounds at El Castillo de Huaricanga are arranged in a U shape facing north, parallel to the channel of the Fortaleza River. The area surrounding the principal mounds is under cultivation, though the rectangular court retains its overall form. This area was visited in 1958 by a Japanese research team from the University of Tokyo (Ishida, 1960). A radiocarbon date of 1396–1208 Cal BC (GaK 109, 1σ range) was obtained from El Castillo de Huaricanga at that time (Kigoshi et al., 1962). This date and the presence of ceramics on the surface suggest that Sector A is a later occupation. No testing was carried out in Sector A in 2003.

Sector B

Sector B at Huaricanga encompasses the portion of the site west of the Paramonga-Huaraz highway from the highway to El Castillo de Huaricanga (Fig. 40). Testing in 2003 focused on three structures. Profile 2 took advantage of an irrigation canal that cut through a mound in Sector B, while Test Unit 1 in Sector B recovered samples from a deposit atop a natural hill. Trench 1 in Sector B cleared part of the surface of a low mound associated with a circle of stones. Each of these samples yielded materials dating to the Late Archaic Period, though some samples dated later and may be associated with the occupation of El Castillo de Huaricanga (Authier, 2012).

Sector B, Profile 2

Profile 2 is located in Sector B2 (Fig. 40; Fig. 42), some 20 m from the highway. This is one of the smaller mounds at the site, approximately $29 \times 29 \times 3$ m (Table 2). Construction of a modern irrigation canal through the side of the mound exposed a long profile that provides a complete view of the construction strata within the mound. The profile is 40 m long and ranges from 1.5 to 3 m in height (Fig. 43). The upper surfaces of the mound, covered with modern debris, have been heavily disturbed by looting and years of use as a work/play area for local residents. At the top of the mound, below the disturbed upper surface (Phase I), was a large-scale episode of deliberate fill over a meter thick (Phase II) that created a formal mound out of what had been a stratified series of structures. Below this cap of construction fill is a clear sequence of superimposed buildings and floors (Phase III).

Among the distinctive features of this profile was what appeared to be the inclusion of adobe bricks in the fill of the walls in this mound. Distinctive blocks of adobe were also visible in the profile, though no ceramics of any kind were identified during the clearing and recording. Rather than being early examples of adobe bricks, however, these blocks were later shown to be chunks of naturally occurring clay quarried from thick deposits of laminated layers of clay along

Huaricanga

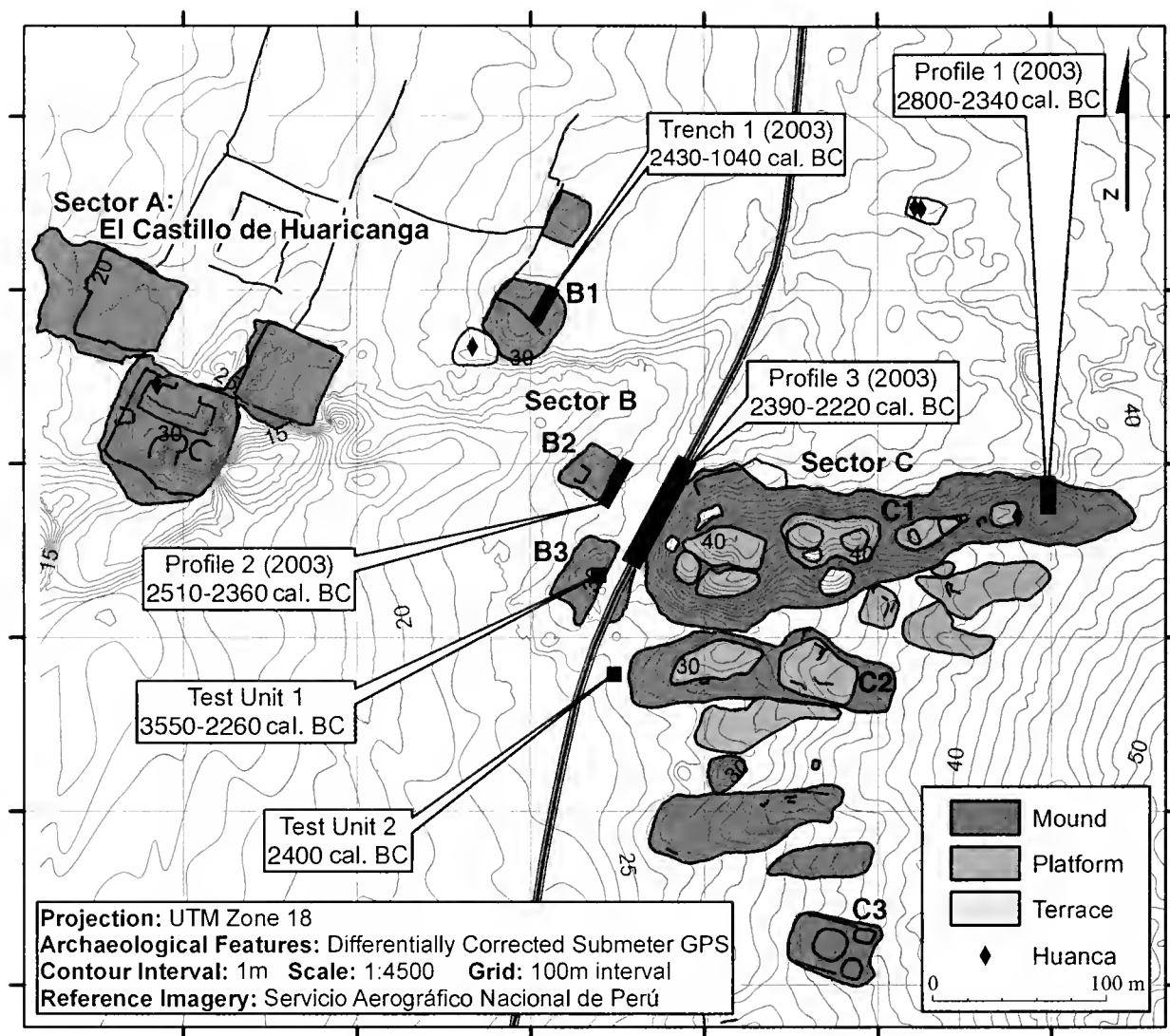


FIG. 40. Huaricanga contour map.

the edges of the wash north of the site. Locally, these blocks are called *yapana*.

Phase III includes a series of distinctive room remodeling episodes that can be seen in the exposed profile (Fig. 44; Table 30), where a room with a low bench around the sides of a sunken central space was built and then remodeled. Over time, a series of alterations were carried out that retained the basic configuration while the central area became progressively smaller. This sequence of structures bears a resemblance to the basic plan of Mito-style temples found in the highlands immediately to the east of Huaricanga (Izumi & Terada, 1972; Burger & Salazar-Burger, 1986; Bonnier, 1997; Haas et al., 2010). Mito temples are marked by exterior walls, a low bench around a square-shaped, sunken area within which there is a central hearth that is often ventilated from below. Confirming the nature of these structures will require further excavation.

A date of 2360 Cal BC was obtained from Layer G fill between floors of the two of the upper Mito-style temples (Table 31a), and a second date of 2510 Cal BC from charcoal was obtained from the base of Phase III deposits (Layer NN, Table 31b), indicating that the period of transformation from a level, sandy area to a low mound with repeatedly remodeled structures took place between 2500 and 2300 Cal BC. The two radiocarbon dates obtained from Profile 2 are statistically contemporaneous, though the charcoal sample has a large standard deviation (110 years). The actual difference between the two dates is unlikely to be as great, as the

numbers in Table 31 suggest. A question that arises from the stratigraphy of this unit is whether the change in construction and layout from Phase III to Phase II represents a change of political or ideological outlook that resulted in demolition of structures and piling up of fill or whether the Phase II deposit represents a lapse in occupation and a later reoccupation during Phase I.

Profile 2 provided the opportunity to record a complete sequence of construction of a small mound in Sector B, providing examples of both horizontal and vertical stratigraphy. The profile reveals an opportunistic approach to building materials in the use of *yapana* from a local deposit along with locally available stone and clay. The profile shows that the area was repeatedly remodeled in ways that gradually raised the level of the mound and includes a series of structures similar to Mito temples that date to 2500–2300 Cal BC.

Sector B, Test Unit 1

This unit was located on the north slope of a small mound or natural hill in Sector B3, also cut by the highway (Fig. 40). The unit was positioned to be aligned with a trash layer visible in the road cut. Excavation revealed layers of deposition tilted toward the northeast (Fig. 45). There appears to have been an effort to level the area by depositing trash fill consisting of shell, bone, lithics, charcoal, and other botanical remains along the slope of the hill (Phase III). The use of trash for



Huaricanga

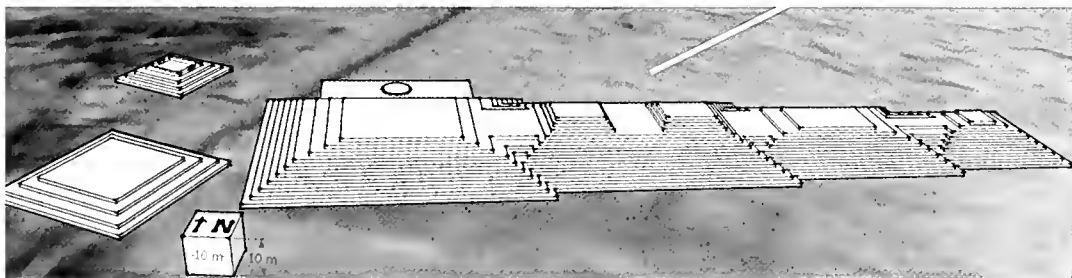


FIG. 41. Photo overview of Huaricanga from hills ESE of the site. The inset is a reconstruction of the main Late Archaic mound at the site (courtesy M. Authier).



FIG. 42. Photo of Sector B, Profile 2, beside irrigation canal.

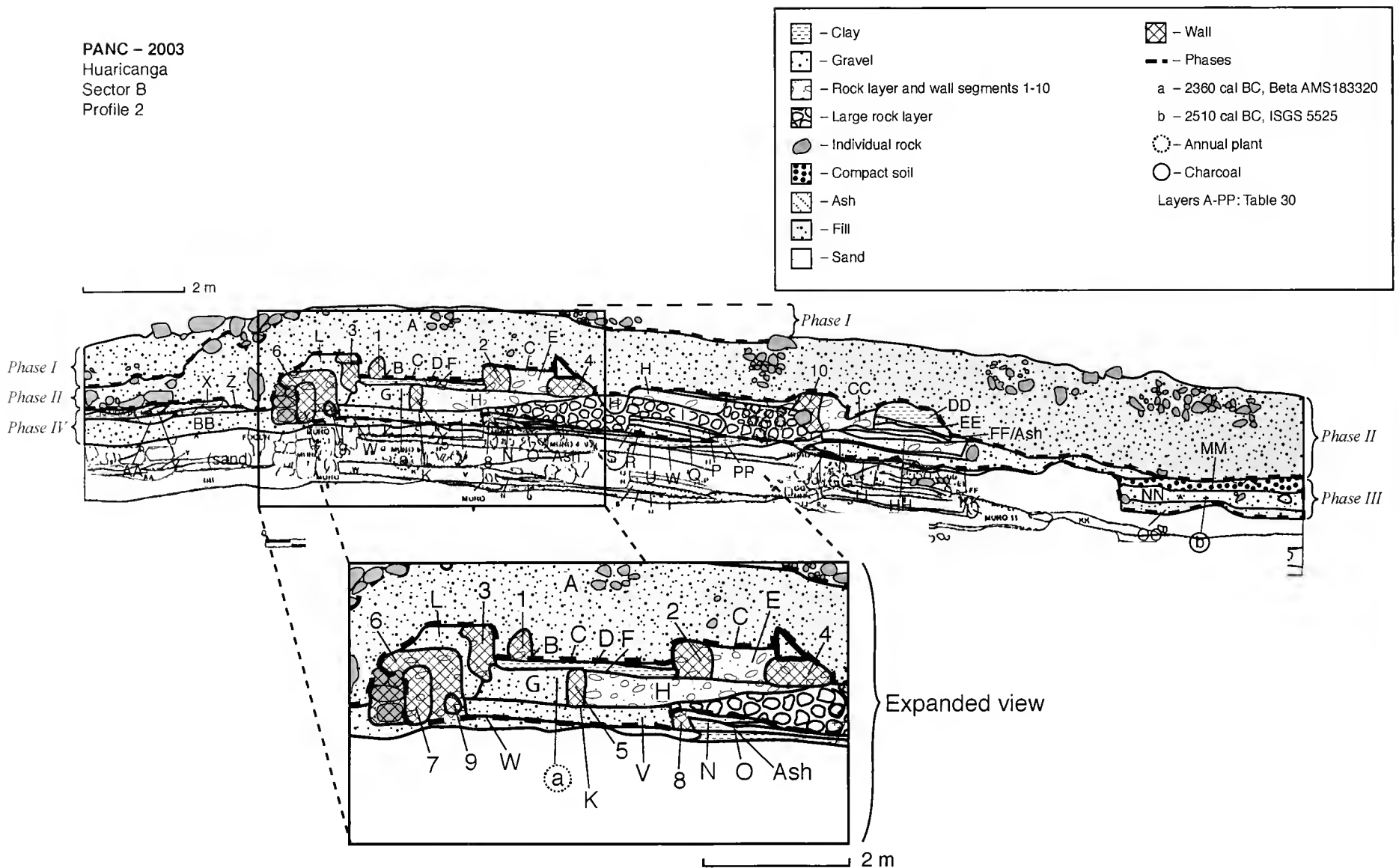


FIG. 43. Huaricanga, Sector B, Profile 2, along the irrigation canal with close-up view of a sequence of remodeled floors.

leveling suggests that the area was already occupied when the leveling was undertaken. Two dates obtained from charcoal in this layer yielded dates of 3550 and 2700 Cal BC (Table 31e, f; Table 32). After the leveling effort, additional construction using gravel and compact earth formed the base of a platform that was completed by a retaining wall (Wall 1) and the rocky fill behind it (Phase II). During a subsequent period, the platform was no longer in use and was covered with more fill consisting of cultural debris, soil, and ash. The consistent composition of the later covering and the absence of floors or packed surfaces within the Phase I material suggest that after the platform was no longer in use, the area was used for trash disposal. There is no indication that there was a specific act leading to the platform being covered. Two dates of 2570 and 2260 Cal BC were obtained from charcoal in the fill covering the platform and suggest that the period of use of the structure was a minimum of 150 years and possibly much longer (Table 31c, d).

Four radiocarbon dates were obtained from Test Unit 1 in Sector B, ranging from 3550 to 2260 Cal BC. This reinforces the Late Archaic date of Sector B noted in the Profile 2 dates. Wall 1 appears to have been built after some trash and earth were deposited to level the area, creating a low platform that was the focus of occupation in this area. The test unit reached a depth of 138–162 cm below surface and ended at culturally sterile deposits, yet the mound cut by the highway was more than 3 m high, showing that the mound into which this unit was excavated was constructed on top of a slight natural rise. Additional excavation would be necessary to determine whether the sterile layer reached in Test Unit 1 could be flood or alluvial deposits and additional

cultural deposits lie below or whether the remainder of the mound is a natural formation, as it appears to be.

Sector B, Trench 1

Trench 1 was located near the northeast corner of Sector B (B1) on a mound $47 \times 41 \times 4$ m high. The trench measured 3×12 m, extending from the base to the middle of the mound. The mound's form and the associated circle of stones with an upright monolith in the center approximate a preceramic site layout. The court is not sunken but consists of a circle delimited by large stones in a position similar to that of mound/circular court combinations at other Late Archaic sites, especially Caballote. A single boulder over 1 m high is located in the center of the circle (Table 2; Fig. 46).

The trench was intended only to clear the surface of the mound and identify the edge of the mound and the uppermost materials. The excavation consisted of removing the loose disturbed surface material and a few centimeters of in situ fill to allow for identification of the uppermost features. Organic materials were very scarce in these upper deposits, and we had only two in situ samples of organic material that could be used for radiocarbon dating. A series of shallow layers were removed in an effort to distinguish building stones that had fallen down from stones still in their original positions (Fig. 47a). Remains of low retaining walls were uncovered that showed a shallow stepped structure, perhaps more accurately termed a platform than a mound (Table 33). A date of 2430 Cal BC obtained from Layer C (Table 31g) suggests the platform was in use by that date. The later date of 1040 Cal BC from plant fiber in Wall 4 appears to reflect much

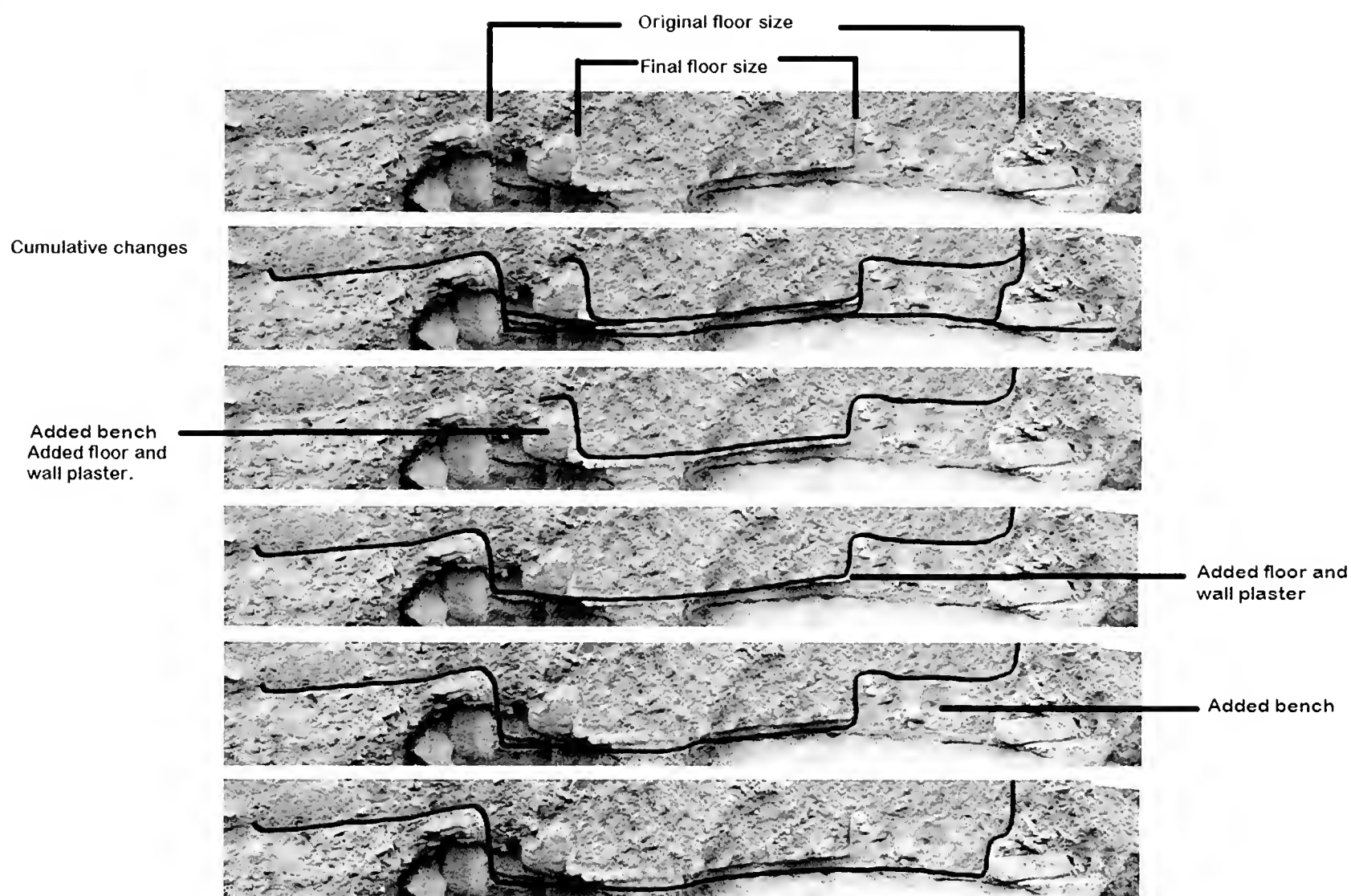


FIG. 44. Huaricanga, close-up of remodeled floors (Mito temple) in Phase II.

later use and remodeling (Table 31h). The stepped form of the structure and the numerous walls show many episodes of remodeling and reconstruction, though these did not add much height to the structure (Fig. 47b).

We were unable to establish a correlation between the profiles of the north and south sides of the trench, largely due to the small area cleared. The radiocarbon sample from above Wall 4 is more recent than the Layer C date, suggesting later reuse of this area or that debris from a subsequent period accumulated here. At the same time, no ceramics were found in this area, making it unlikely that a substantial later occupation was present. Rather than considering the Wall 4 date anomalous, it may be associated with the period of occupation of the adjacent El Castillo de Huaricanga, occupied during the Initial and Early Horizon periods (Authier, 2012).

A section of Floor 1 had been removed, marked by a distinct edge of clay floor material and a gap between the floor and the nearest wall, Wall 1, where the plaster curved upward, showing a former floor/wall connection (Fig. 47b). Wall 1 had been the side of a broad plastered step bounded by Wall 4. A lower step was bordered by Wall 2. Remodeling and rebuilding are characteristic activities of the Late Archaic Period, part of the long-term process of mound building. Wall 4 was replaced by Wall 5, broadening the step, and Wall 6, introduced to create an additional step in the platform, was replaced with Wall 3. Eventually, Wall 1 was replaced by walls that seem to have decreased the size of the upper step, where the corner of two walls was identified as a platform. Although the Sector B mound at Huaricanga did not reach more than 3 m at its highest point, numerous low retaining walls were built and rebuilt.

The construction included a mix of angular rock, probably quarried from the hillsides nearby, and cobbles from the riverbed, also nearby. This range of materials is notable for the mix of nearly equal parts cobbles and angular rock. Elsewhere, sites tend to be constructed of predominantly one type of rock or the other, depending largely on the distance from the river to the site. At Huaricanga, located as it was on the first terrace above the river in an open dry wash, both river cobbles from the banks of the river and angular rock quarried from the sides of the wash were available for mound construction.

This test trench revealed a complex sequence of constructions. While specific functions could not be determined from the limited testing, there are no indications that it was residential architecture. There were no associated deposits of domestic trash, no hearths, and no heat-altered rocks that are associated with heated rock or *pachamanca*-style cooking. Given the association of these structures with a stone-rimmed circular court, it is most likely that this construction was associated with communal or ceremonial activities.

Sector C

Two profiles were recorded on the large mound in Sector C at Huaricanga. Profile 1 included a north-facing portion of the large mound, Sector C1. Another section of the same mound was recorded in Profile 3, where a long profile on the west end of the mound was exposed by the construction of the adjacent highway. One test unit was excavated in Sector C2 to provide a sample of midden associated with the mound.

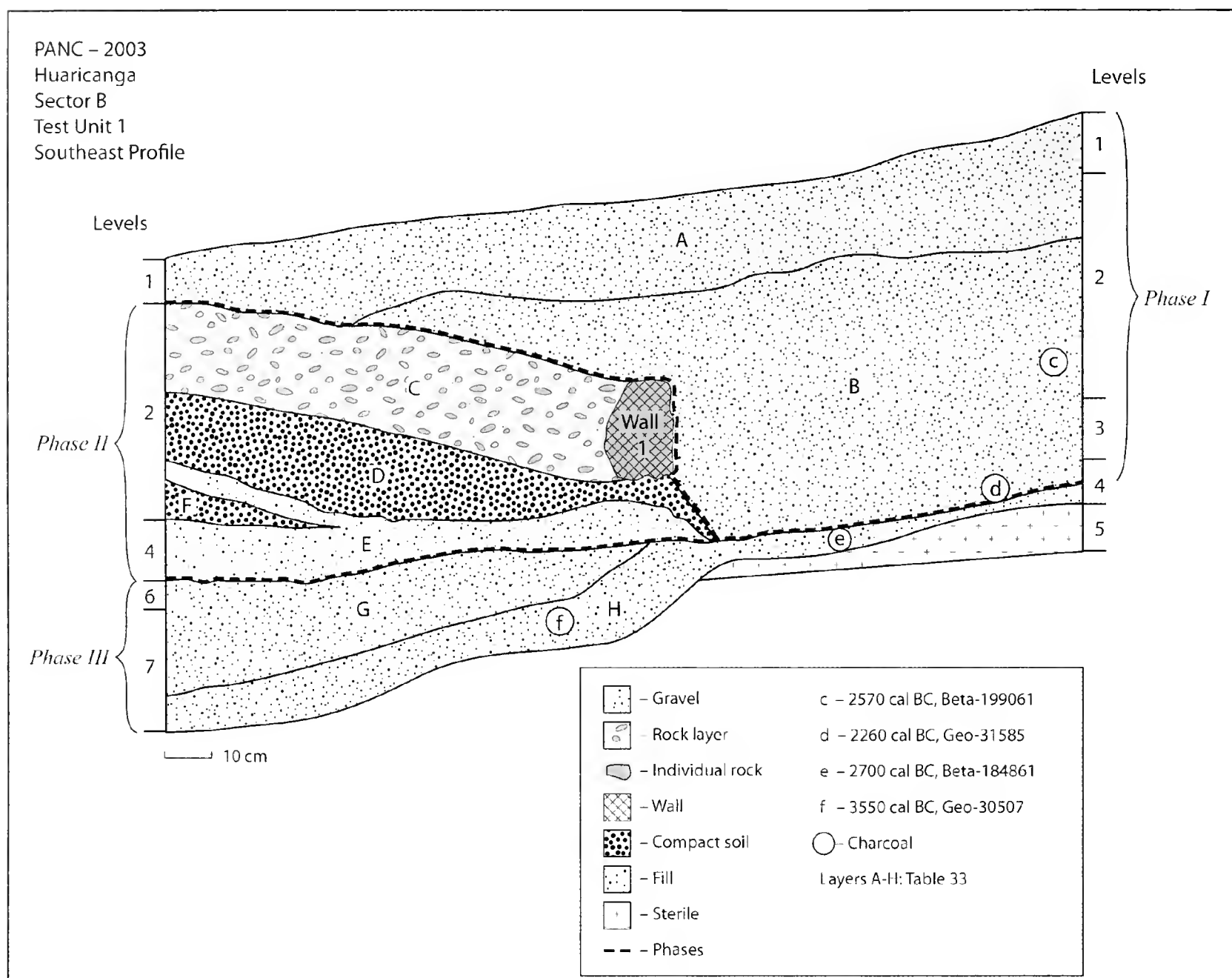


FIG. 45. Huaricanga, Sector B, Test Unit 1.

Sector C, Profile 1

Profile 1 was located on the north side of the main mound in Sector C (C1), east of the highway to Huaraz (Fig. 48; Fig. 49). Unlike other Late Archaic mound sites in the Norte Chico, the main mound at Huaricanga is a long series of connected structures that extends almost 300 m from the highway (Fig. 41, inset). The profile was recorded along a section of the mound where a portion of the structure was taken for fill and gravel during the 1970s when the highway was widened. The exposed profile is 6–7 m wide and 7 m high, displaying a series of floors, retaining walls, coats of plaster, and layers of construction fill that show the construction techniques employed and the construction phases at this end of the mound (Table 31; Table 34). Four radiocarbon dates were obtained from this profile, ranging from 2800 to 2340 Cal BC. Two radiocarbon dates, 2620 and 2440 Cal BC (Table 31j, k), were obtained from materials in Phase III, a major construction episode using *shicra* bags to fill retaining walls, such as Wall 2. A sample of plant fibers from the base of Wall 2 at the top of the Phase IV materials dated 2800 Cal BC (Table 31l), and plant fibers from a floor below Wall 2, one of a series of floor surfaces that make up Phase IV at Huaricanga (Fig. 48; Table 31i) dated 2340 Cal BC, indicating an earlier construction phase, probably when Wall 3 was filled in and a series of floors built above it. The stratigraphy shows

repeated construction phases, while the dates suggest a long period of use as well. The oldest date comes from the base of Wall 2 from a sample of plant fiber and the youngest date from plant fiber in floors below Wall 2. It is difficult to assess the possible sources of error apart from the possible mixing of older and younger materials in samples of plant fiber compared to samples of fiber bags. Despite the issues, the range of dates obtained is entirely within the Late Archaic Period.

A number of unbaked pottery tokens were found during the clearing of Profile 1 just above Wall 3 (Fig. 49; Fig. 50). Their location, tucked along the base of a wall, would indicate that they were intentionally placed, but it could not be determined if their position was related to some specific function or if they were some kind of offering. The group includes eight tablets and two fragments made of untempered clay, ranging in shape from rectangular to trapezoidal. One is triangular. The unbroken tokens were 6–8 cm long, 3–7 cm wide, and about 1 cm thick. Two surface finds in the disturbed fill at the top of this profile may also have been offerings, but their surface context makes this difficult to determine. A slate fragment engraved with hatched lines was found (Fig. 51), similar to hatching on a small polished stone from a Late Archaic level at Huaca Prieta (Bird et al., 1985, p. 89, fig. 4) and to an ax with incised hatching from Kotosh from a ceramic bearing level (Izumi & Sono, 1963, pl. 110). Several perforated land snail shells were also found, including some still strung together on a spun string. Although



FIG. 46. **Upper:** Photo of rock circle at Huaricanga located on the SW side of the low mound in Sector B and extending onto the low slope of the mound. **Lower:** Circle of upright stones, or *huancas*, forming a circular court at Caballete.

individual disc-shaped shell beads have been recovered from excavations at Huaricanga and other sites, this was the only find of a necklace of whole land snail shells.

Profile 1 at Huaricanga reveals that mound construction using retaining walls and fill to form successive platforms

raised the height of the mound; Phase V (Wall 3), Phase III (Wall 2), and Phase II (Wall 1) include retaining walls. These were punctuated by two phases of mound occupation that included the creation of successive floors (Phase IV and Phase II). The dates obtained show that construction and occupation

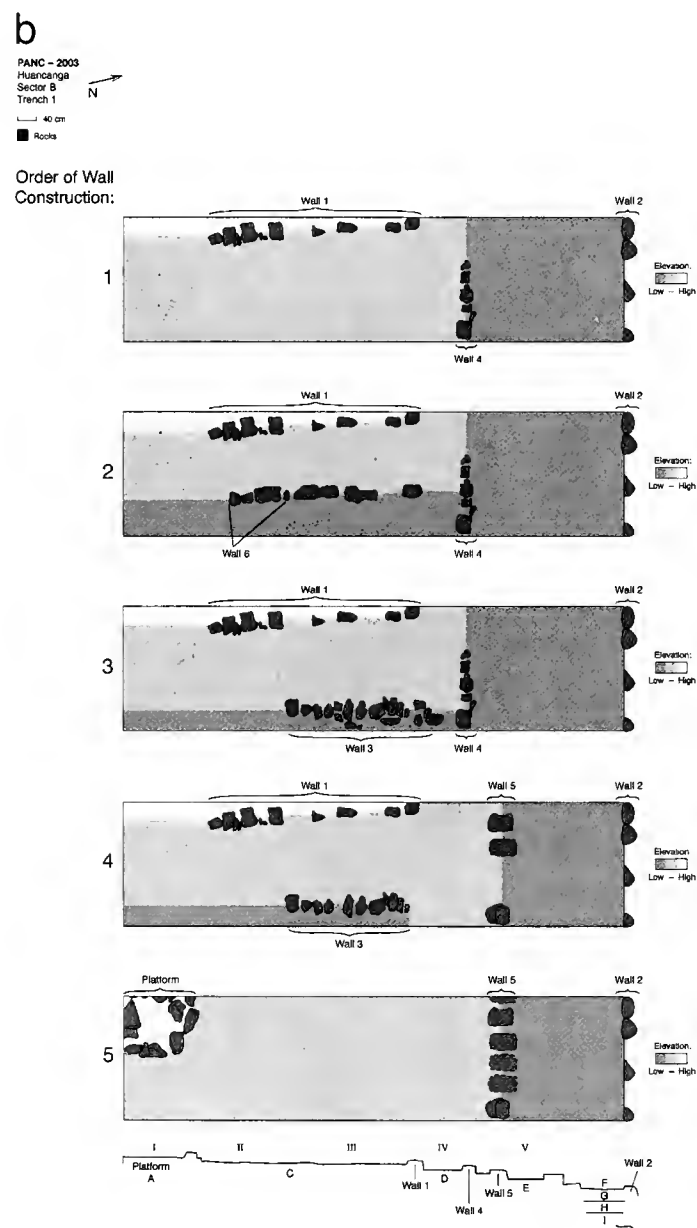
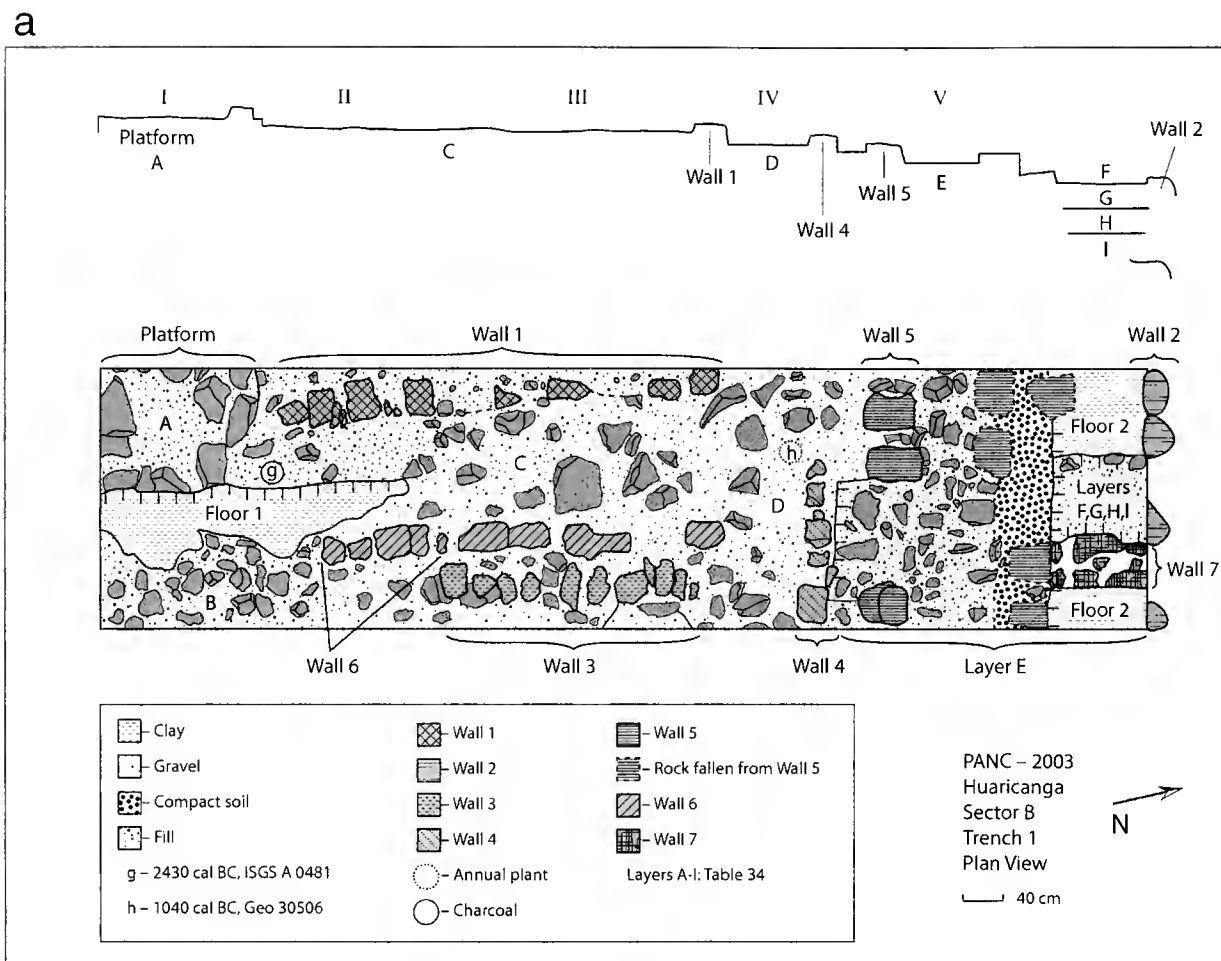


FIG. 47. (a) Huaricanga, Sector B, Trench 1, map. (b) Huaricanga, Sector B Trench showing the construction of walls over time. **1.** Oldest construction. Walls 1, 2, and 4 create two stepped layers. **2.** The addition of Wall 6 adds a third step. **3.** The middle step is made wider with the replacement of Wall 6 with Wall 3. **4.** The middle step is made wider with the replacement of Wall 4 with Wall 6. **5.** The highest step is made smaller by the replacement of Wall 1 with the platform.

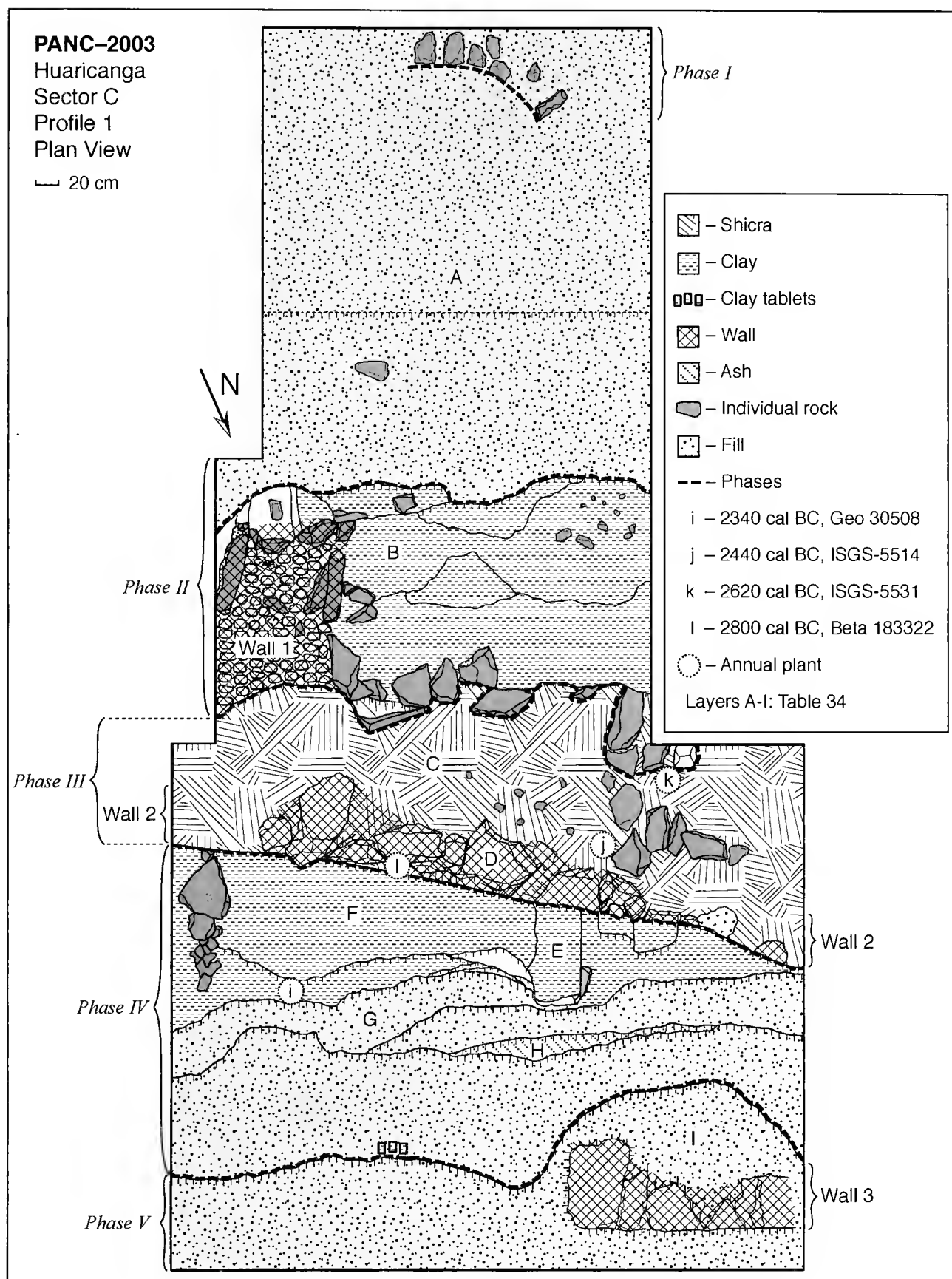


FIG. 48. Huaricanga, Sector C, Profile 1.

of the Sector C mound took place between 2800 and 2300 Cal BC. This profile did not show any of the overlapping of structures that can be seen in the contour map and aerial views of the site. Future research will be needed to determine the form of the initial structures in Sector C and whether they represent an innovation or experiment in mound construction. The long line of aggregated mounds is different from most other Late Archaic mounds in the Norte Chico. Long mounds like this one at Huaricanga characterize the sites of Huacache and Peñico in the Supe Valley, but the construction sequence remains unexplored for either of those sites. By itself, Profile 1 illustrates a distinct point within the range of acceptable variability in the architectural canon of Late Archaic monument construction, and it speaks to a lack of a regional centralization, as local leaders were exercising independence in determining the shape of monuments at the site level.

Sector C, Profile 3

Part of C1, Profile 3 was exposed when the western end of the mound was removed by the Huaraz highway construction. Profile 3 is about 60 m long, exposed by heavy machinery during roadwork. The profile was cleaned and straightened, but no new excavation into the hillside was conducted. The profile ranges from 1.5 to 2.2 m high (Fig. 52; Fig. 53). We were not able to identify *shicra* bags in Profile 3, and there was no other fiber visible in the exposed stretch. Two samples of charcoal were radiocarbon dated, from Layer C and Layer G (Fig. 52).

The date of 2220 Cal BC from Layer C (Table 31m) was from a sample of charcoal from Feature C1, a lens of compact clay mortar within construction fill of medium-sized rocks and clay mortar. The date falls into Phase III

PANC-2003
Huaricanga
Sector C
Schematic Profile

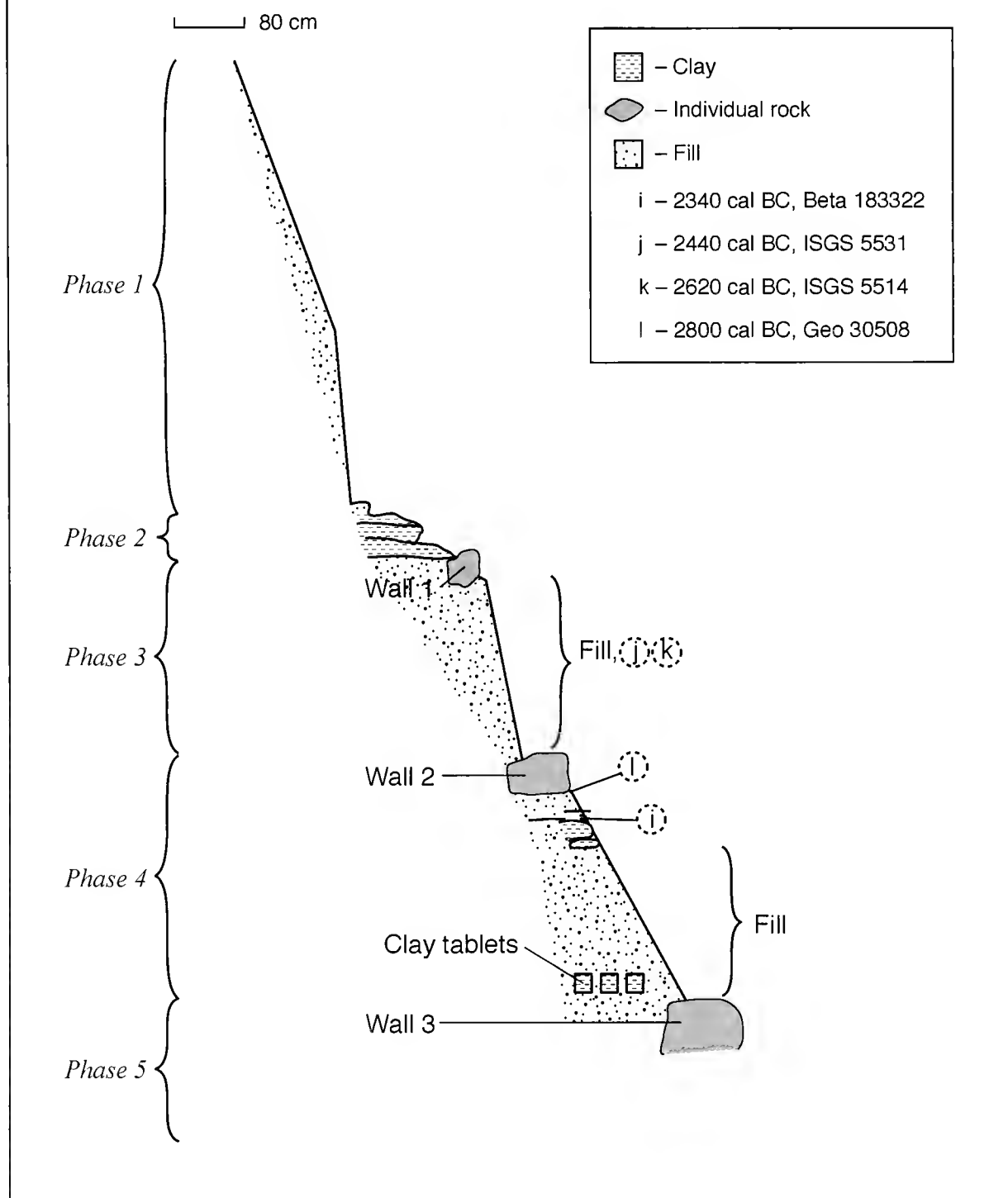


FIG. 49. Huaricanga, schematic of Sector C, Profile 1.

(Table 35) and indicates a period of time when Wall 1 was being built, the period of large construction phases in this part of the site.

The date of 2390 Cal BC comes from a sample of charcoal in Layer G, the earliest occupation of the area, visible at the base of the roadway. In this layer are a series of overlapping deposits that suggest habitation. The layers are immediately above a sandy deposit that appears to represent the original ground surface in this locality. It appears that there was occupation in the form of floors, fires, and some trash deposition early in the history of this portion of Huaricanga that was replaced by construction on a much larger scale.

This profile clearly shows a sequence of construction episodes, each represented by construction fill. The date of 2390 Cal BC comes from the lowest stratum visible, a distinct layer of ash and

fine gravel. This is the oldest deposit at the west end of the Sector C mound, more than 3 m below the top of the mound and situated on a layer of soil lacking artifacts. The Layer G ashy deposit may reflect a special activity carried out to inaugurate the construction that involved burning some materials, or it may be associated with residential activities early in the sequence of occupation.

Sector C, Test Unit 2

A test unit was opened in Sector C (C2), south of the main mound at Huaricanga, beside a looters' hole where a layer of trash could be observed. The unit was 1 × 2 m and was excavated in artificial levels (Fig. 54). Two distinct periods of use were identified during the occupation of this part of the site. A borrow pit (Layer E) (Table 36) was excavated into the

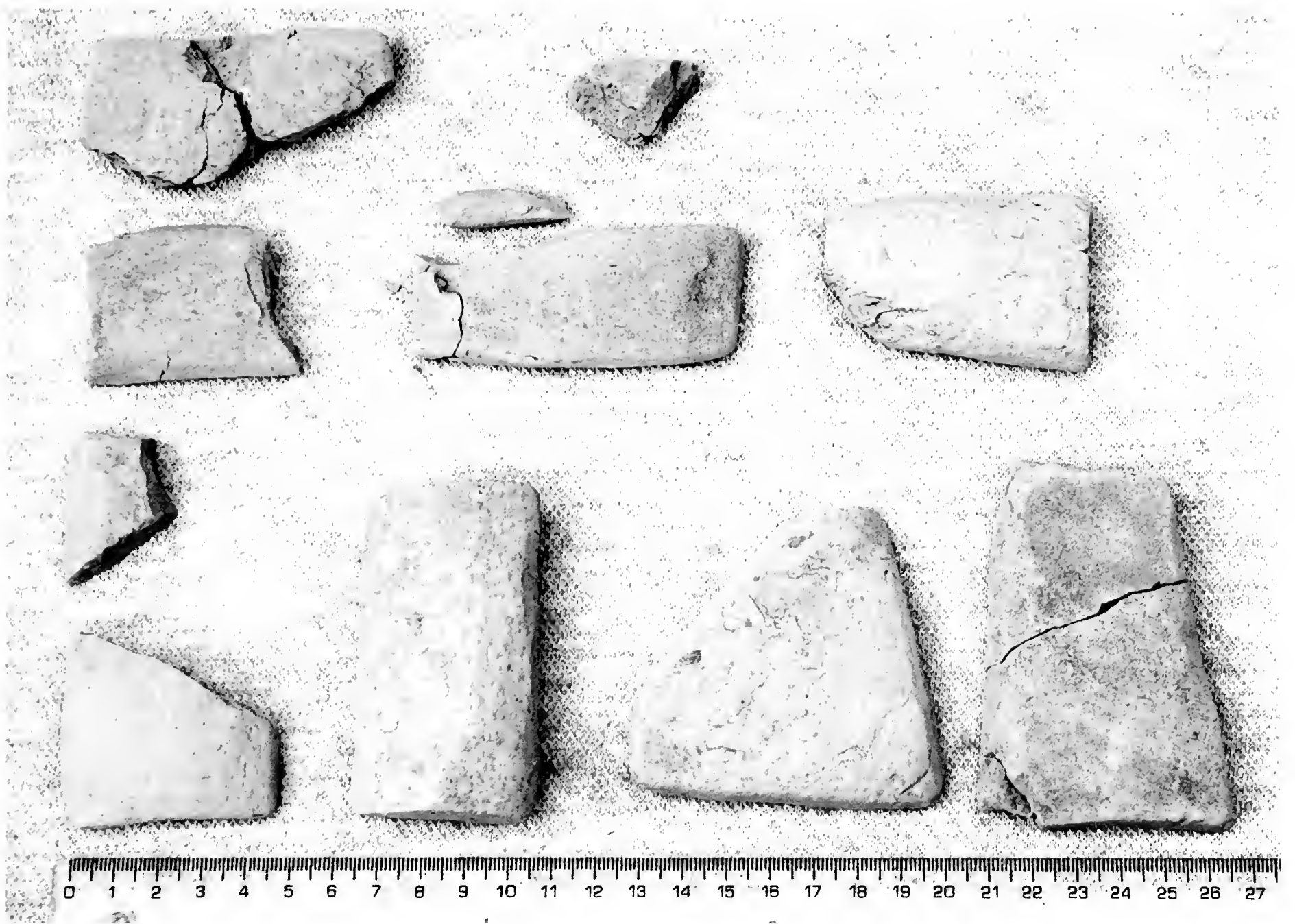


FIG. 50. Photo of clay tablets from Sector C, Profile 1, at Huaricanga.

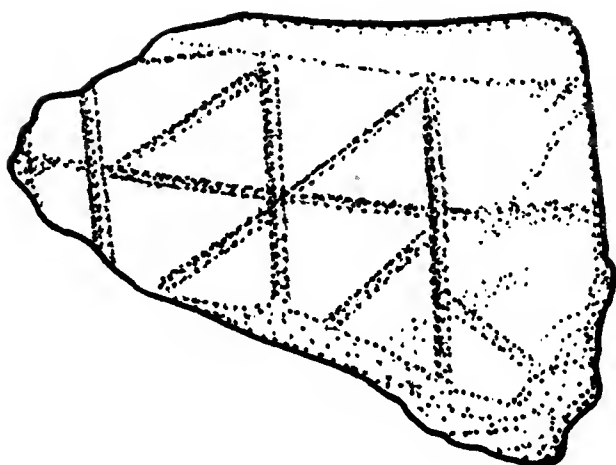


FIG. 51. Incised rock from Huaricanga, Sector C, surface above the profiled area.

original ground surface. This was later filled in with a mix of cultural debris, including ash, shell, and botanical remains. There appears to have been a hiatus in occupation at this point and then later use of this area as a midden. The trash deposited during the renewed period of use (Phase II) included lithics and shell in a dense matrix of charcoal and plant material. A sample of charcoal from this level dated to 2400 Cal BC (Table 31o), indicating a relatively early period of use for this locality since the date is from the later dense midden and not from the filling of the borrow pit.

Test Unit 2 confirms the presence of domestic trash in close proximity to the main mound of Huaricanga. This unit reached a depth of 97 cm below surface, a substantial deposit. Similar deposits of midden near large mounds were identified at Caballote (Sector A, Test Unit 4, and Sector B, Test Unit 1) and Porvenir (Sector A, Test Unit 3). However, more excavation would be needed to determine the actual use of the area during the period when the surface formed over Layer E or earlier, when the first borrow pit was excavated here.

Huaricanga Discussion

Testing at Huaricanga revealed a long period of Late Archaic occupation, beginning toward the end of the fourth millennium or beginning of the third millennium BC,

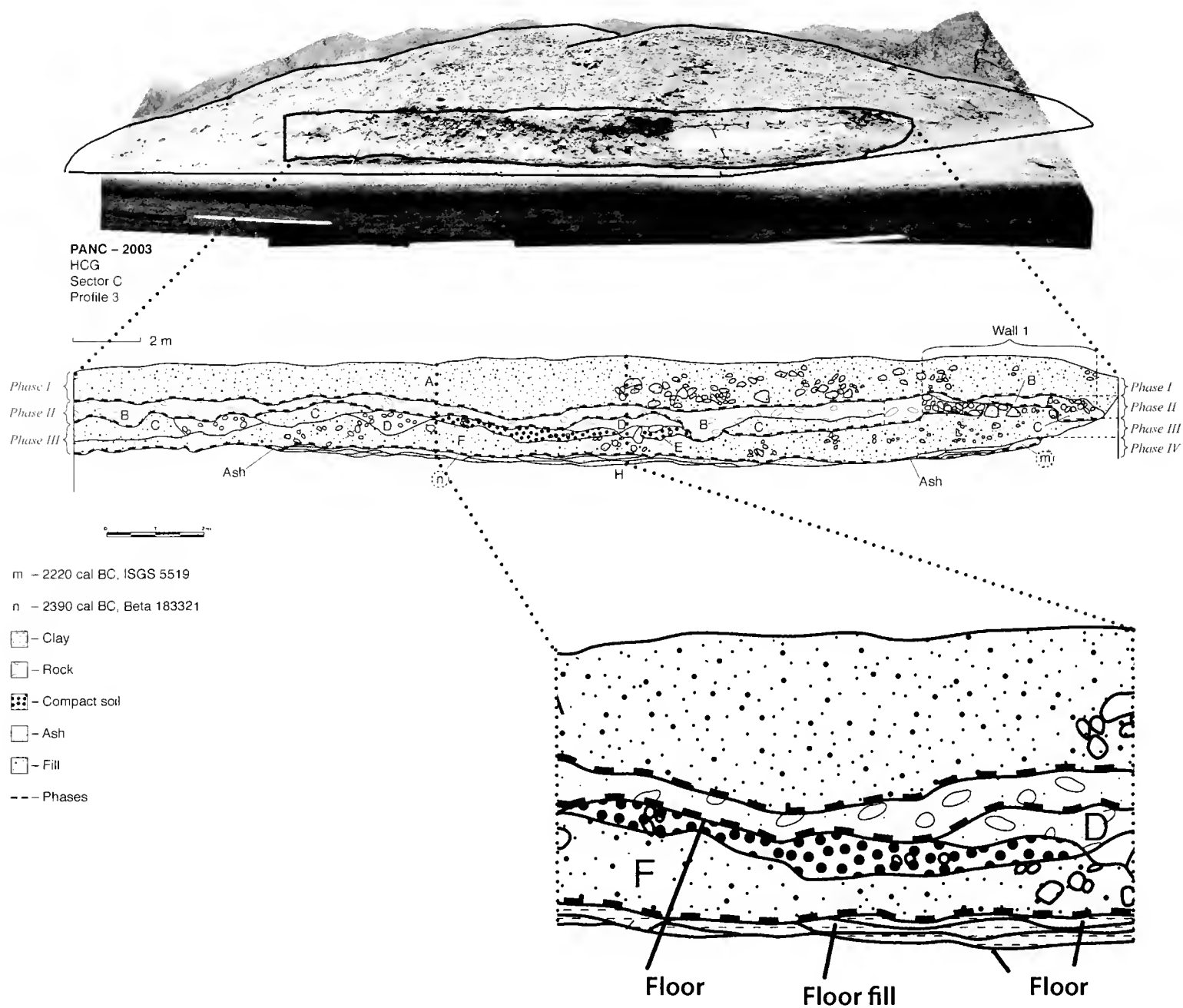


FIG. 52. Huaricanga, Sector C, Profile 3, along highway.



FIG. 53. Huaricanga, photograph of profile along highway, with Guillermo Galvez G.

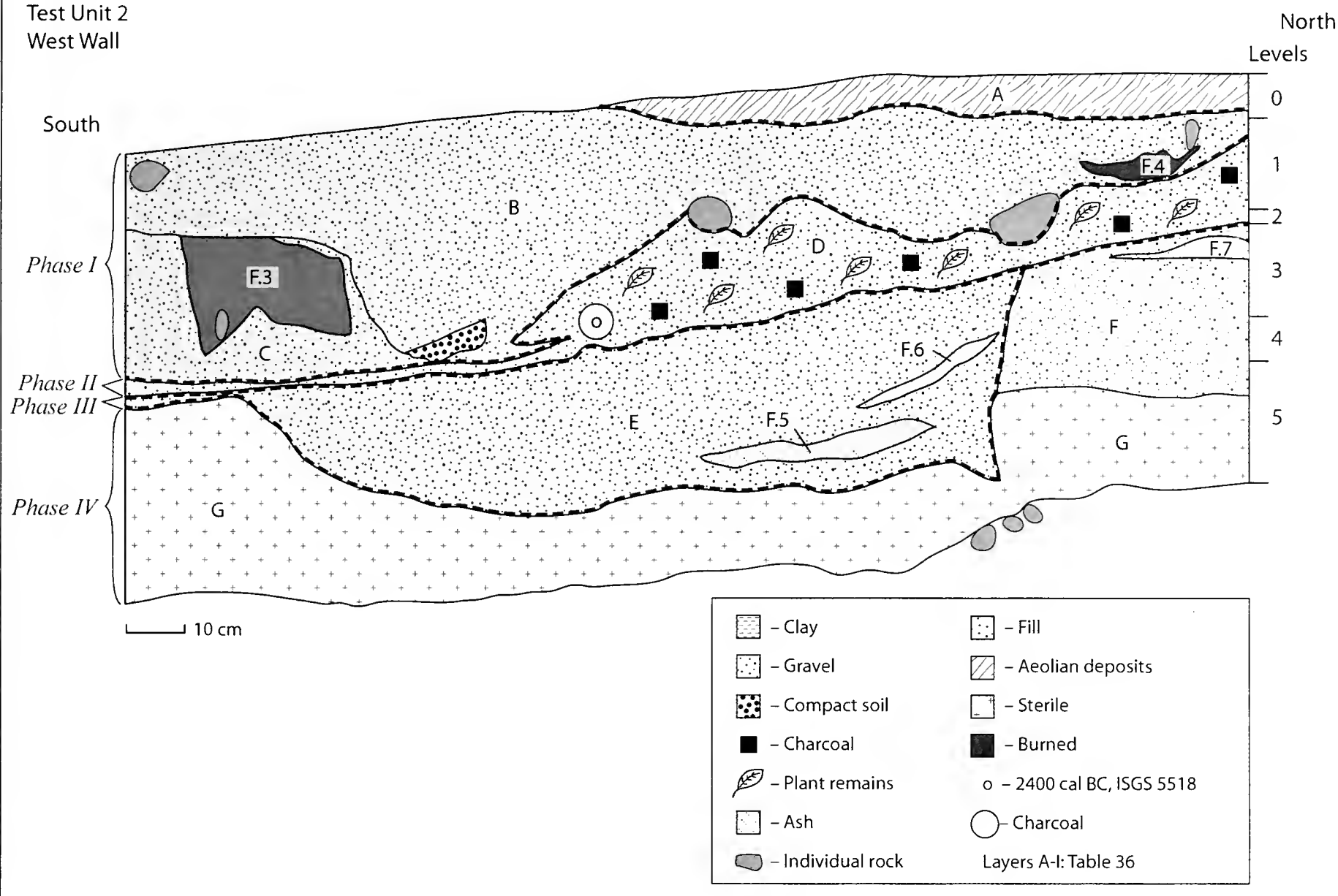


FIG. 54. Huaricanga, Sector C, Test Unit 2.

continuing for 800 years or more. Construction identified during testing included three mounds built of retaining walls filled with rock in Sector B and Sector C; a low platform exposed in Sector B, Test Unit 1; and a borrow pit that was later filled in and subsequently used for trash disposal in Sector C. Areas of overlapping floors indicating habitation were identified at the base of the Sector C and Sector B mounds.

The earliest date for construction at Huaricanga is 3550 Cal BC, from Test Unit 1 in Sector B, but this is an outlier, and other dates from the same unit date 2700–2260 Cal BC. Earlier construction probably took place among the mounds that make up Sector C, dated 2800–2340 Cal BC (Table 32). Much of the construction at Huaricanga overlaps in date (Table 31), and a particular structure cannot be singled out as the oldest of the structures present at the site. There is some suggestion that the northern end of the Sector C mound is older than the southern end near the highway. In this case, construction of the series of overlapping mound structures begun around 2800 Cal BC in Sector C proceeded from the base of the hills toward the edge of the river terrace, continuing over the following 500 years.

The goal of testing at Huaricanga was to obtain radiocarbon dates for different portions of the site and not specifically

to examine habitation. However, in three places—the base of Sector C, Profile 3 (2390 Cal BC); the base of Sector B, Profile 2 (2510 Cal BC); and the trash deposit above the borrow pit in Sector C, Test Unit 2 (2400 Cal BC)—evidence of habitation was found in the form of trash deposits, lenses of ash and clay, or packed earth floors. Dates for these features cluster between 2510 and 2390 Cal BC (Table 31; Table 40). These may indicate an active period of mound construction, with groups of construction workers living close to the terraces and platforms being built to raise the height of the Sector B and Sector C mounds. Occupation of the area continued into the Initial Period, as indicated by the adjacent Castillo de Huaricanga and the date of 1040 Cal BC from Sector B, Trench 1 (Table 31h), and which may date to use of Sector B during occupation of El Castillo de Huaricanga.

Shaura

In air photos of the Fortaleza Valley taken in 1969, the site of Shaura is clearly visible and appears to have been one of the most impressive of the sites in the upper section of the valley, with a main mound (67 × 52 × 10 m), an associated

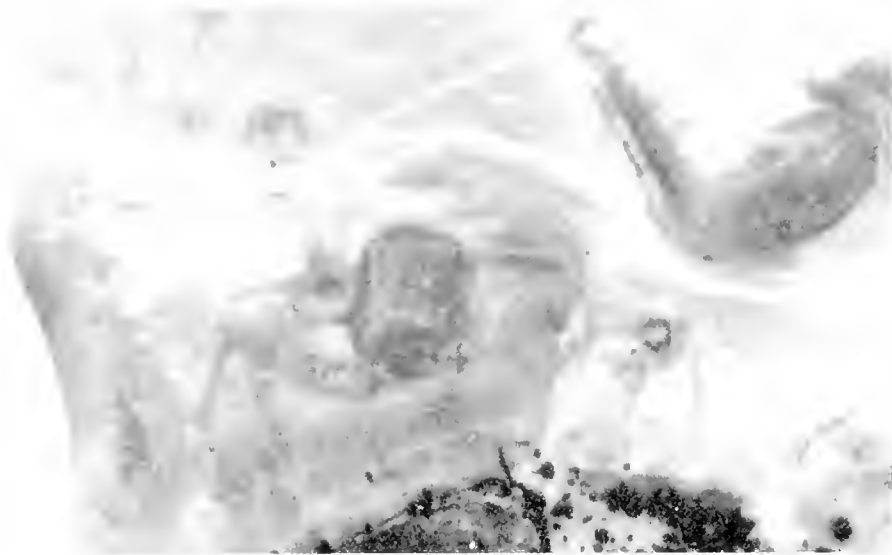


FIG. 55. 1969 air photo of Shaura.

sunken circular court 24 m in diameter, and two secondary mounds (Fig. 55). Since that date, however, Shaura has served as a quarry from which rock was removed for the construction and maintenance of the highway between Pativilca and Huaraz, built in the 1970s. The main mound at Shaura has been virtually destroyed by heavy machinery employed in building the highway that mined the mound for stone, and only a small fragment of the mound base remains intact. Review of the area and the air photos suggested that a small portion of one side of the main mound at Shaura was still preserved, and it was in this area where we carried out limited testing. Shaura was not divided into sectors since so little of it remained (Fig. 56).

Excavations at Shaura included two units. Trench 1 was a 3×9 -m unit cleared to assess the nature of construction of the main mound. Samples for radiocarbon dating would help us locate Shaura within a regional chronology. A 1×2 -m area was designated Test Unit 1, with the goal of determining the presence of lower levels of the main mound or midden possibly dating to the preceramic period. The bulk of the mound was no longer present, but construction and occupation layers dating to early phases might be preserved.

Trench 1, Main Mound

Trench 1 was located in the preserved corner of the main mound at Shaura, though initially it was difficult to determine whether the inclined area where the trench was placed was the exterior of the mound or merely a slope created by gravel mining. What remains of the main mound at Shaura is an area of river cobbles, sloping steeply toward the southwest. From the air photos and the orientation of the site in this area, it appears that this was originally the western corner of the main mound, and our clearing in Trench 1 established that this was a preserved portion of the exterior surface of the structure along its northwest margin (Fig. 57).

Clearing a section of the slope revealed two sections of wall parallel to one another and forming a step of the overall step-sided mound structure. A packed clay floor covered the cleared area at the base of Wall 2 as well as part of the space between the top of Wall 2 and the base of Wall 1. Sitting on that step (Layer D) was a highly polished boulder, though it is not certain whether this was the stone's original position. The black, fine-grained volcanic rock is distinctive in form and different in composition than the

rock used in wall construction, clearly an intentionally placed object (Fig. 58).

The area cleared in Trench 1 at Shaura revealed a single phase of occupation on the main mound. This included a segment of wall with a broad, plastered surface extending out from it in Layer E and Layer F. This segment appears to be the base of a step in the overall construction of a step-sided structure. The trench excavation at Shaura yielded evidence that a portion of the mound structure is still present at the site. Clearing the trench revealed that the mound was constructed almost entirely of rounded river cobbles rather than quarried rock. A large in situ wall segment was cleared, and a compact surface above the wall was revealed. Thus, despite the cobble construction, Shaura appears to have been constructed in a manner similar to other sites where retaining walls of large rock were filled with *shicra* bags and other fill; leveled with small rocks, gravel, and sand; and then covered with a thick layer of clay mortar (Table 38). The polished boulder has a different shape than the upright stones, or *huancas*, seen elsewhere at Late Archaic sites. At the same time, the stone is polished in patches on the surface, similar to some *huancas*, and it was found in the rubble of the main mound, suggesting that it was once placed on the structure.

Two charcoal fragments from Shaura were collected from a row of cobbles that form the wall at the upper edge of the preserved step. These appear to be part of the original mound construction. A date of 1330 Cal BC (Table 37a) was obtained on a sample of charcoal from the fill behind Wall 1. A second date of 2050 Cal BC (Table 37b) came from charcoal within the stones of Wall 1. The dates are divergent, though both indicate the relatively early date of the site. The earlier date does overlap statistically with the date obtained from Test Unit 1 and suggests that a Late Archaic date for occupation of the site is reasonable. Since Trench 1 was an effort to clear the surface and record surviving features, additional evidence of construction is likely to be preserved beneath the cleared surfaces.

Test Unit 1

Test Unit 1 was located in the center of what had been the main mound at Shaura. At the time of testing, the area appeared to be a low platform crossed by a dirt road. The objective was to determine whether any portion of the main mound was preserved and whether the platformlike area was part of the mound or a remnant of earthmoving activities.

Test Unit 1 proved to be relatively shallow, though there were some archaeological features present (Table 39; Fig. 59). Two wall segments, one with an irregular base layer of clay and a burned area or patch of burned fill that had been covered with earth, shows one period of use, while the ashy surface below the walls may indicate another period of use. Charcoal from the base of the ash layer dated to 1880 Cal BC (Table 37c).

Although it was possible to identify a surviving portion of the main mound at Shaura, the area excavated in Test Unit 1 was small, and it could not be determined whether the walls were part of a structure or perhaps the lowest courses of retaining walls for subsequent platform construction. It would be possible to examine this possibility further with a series of additional test units or auger holes that could show whether

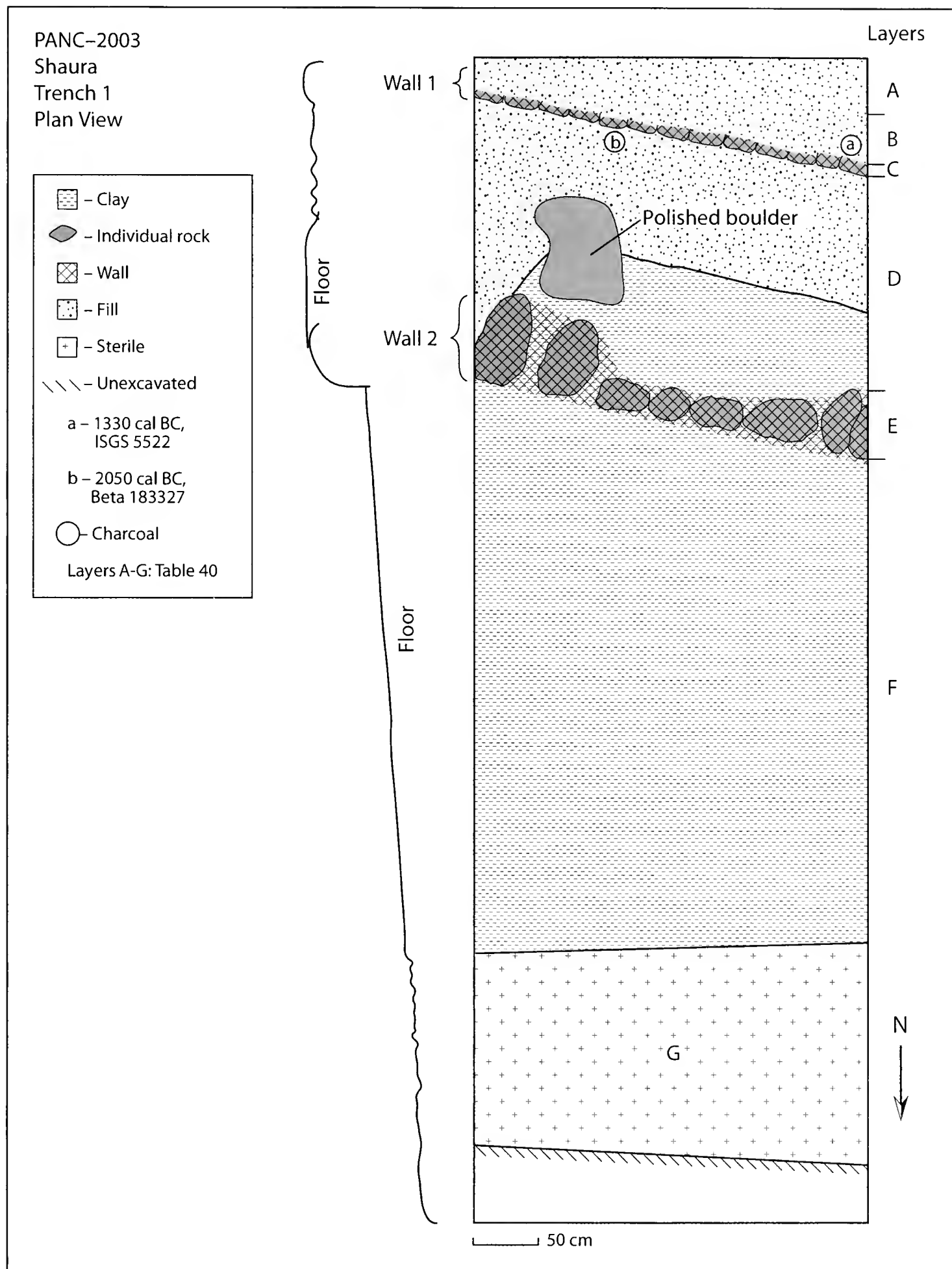


FIG. 56. Shaura contour map showing location of test units.

any cultural deposits lie farther below the surface in the general area of Test Unit 1.

Shaura Discussion

Trench 1 confirms that a corner of the main mound still exists at Shaura. Although the two dates from the trench come from charcoal samples (Table 37), the dates suggest occupation of this mound prior to 1300 BC. The presence of two walls and a use surface in Trench 1 indicates that permanent

construction dating to the Late Archaic Period is still preserved at the site, while the polished boulder indicates the ceremonial function of the mound.

The date of 1880 Cal BC from Test Unit 1 falls within the range of dates from the trench and is consistent with Late Archaic occupation. The Test Unit 1 excavation suggests that there may be material from the lowest levels of the mound at Shaura that are still preserved that could provide an opportunity to examine layers that are ordinarily deeply buried under mound structures. Whether this type of

Shaura

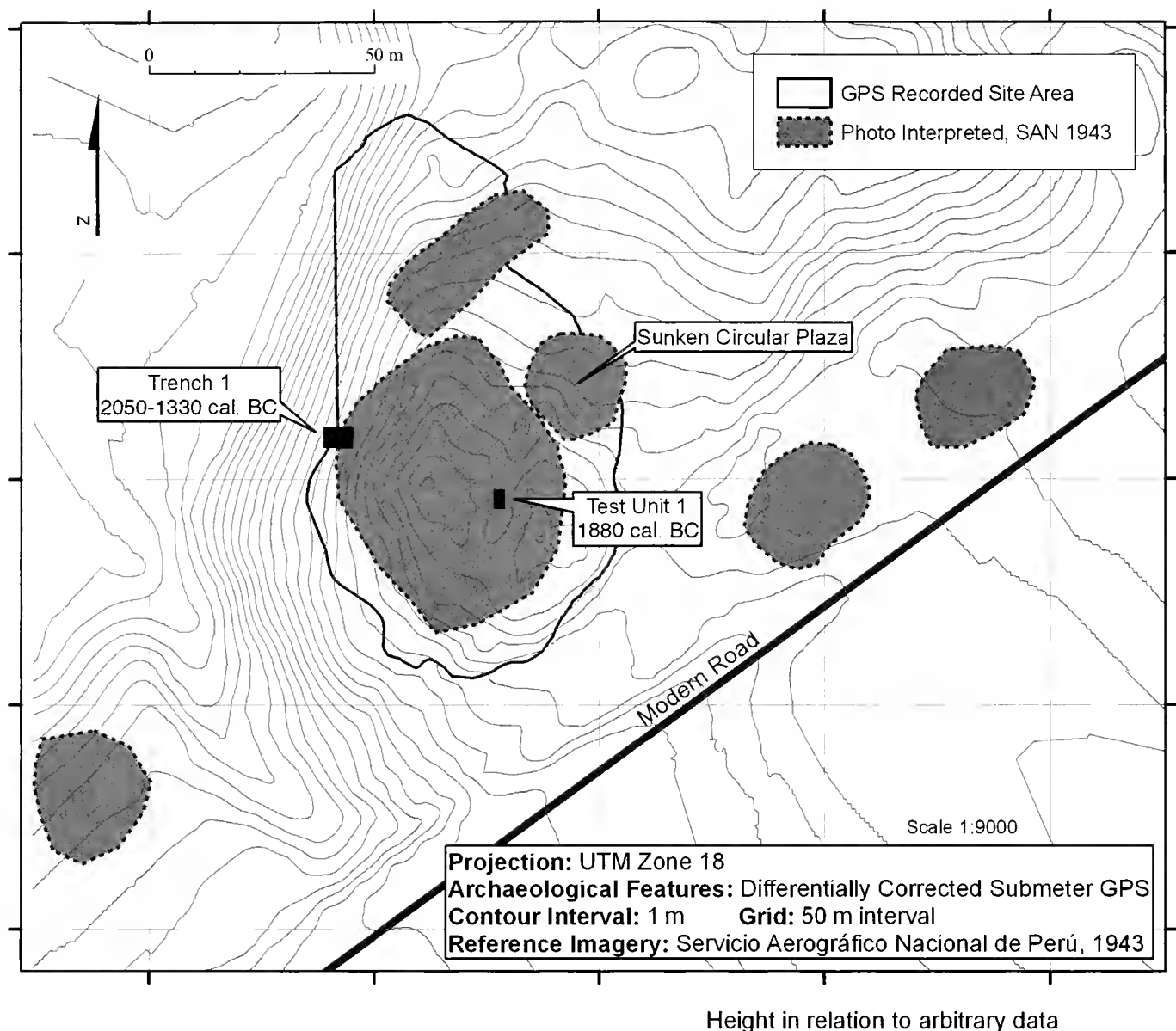


FIG. 57. Shaura, Trench 1, main mound showing the location of the polished boulder nicknamed the “piedra voluptuosa.”

excavation will take place before the remainder of Shaura is mined for gravel is the more critical question.

Discussion: Fortaleza Valley

The Lower Fortaleza Valley spans some 46 km from the ocean to the foothills of the Andes, and the six sites tested in

2003 and 2004 extend across much of this distance, from Porvenir within 5 km of the coast to Shaura, 33 km inland. The number of sites and their size can be considered in terms of the duration of occupation at each site and the sequence of occupation across the region. If large sites were established sequentially during the Late Archaic, each in turn acting as a central place for the entire valley, we would expect to find a cluster of radiocarbon dates indicating peak occupation at a different date for each site. An alternative to sequential construction and occupation of sites would be construction of each site separately depending on local conditions. This would result in a series of centers overlapping in time. Sites may have come into competition with one another as their area of influence expanded into that of neighboring groups. Archaeologically, we would expect to find sites similar in size and date, though there could also be evidence of consolidation over time with one site increasing in size and another decreasing.

Systematic and comprehensive surveys of all three valleys from the coast to where the valleys narrow at the start of the Andean foothills were conducted in 2004–2007 (Nelson & Ruiz, 2005; Perales, 2006, 2007). A total of over 1500 archaeological sites and over 10,000 separate site occupations were recorded in the course of these surveys (many “sites” in this area were occupied at multiple times in the course of the past 5000 years). Over 30 large sites with various combinations of public and residential architecture were identified as



FIG. 58. Shaura, polished boulder on main mound.

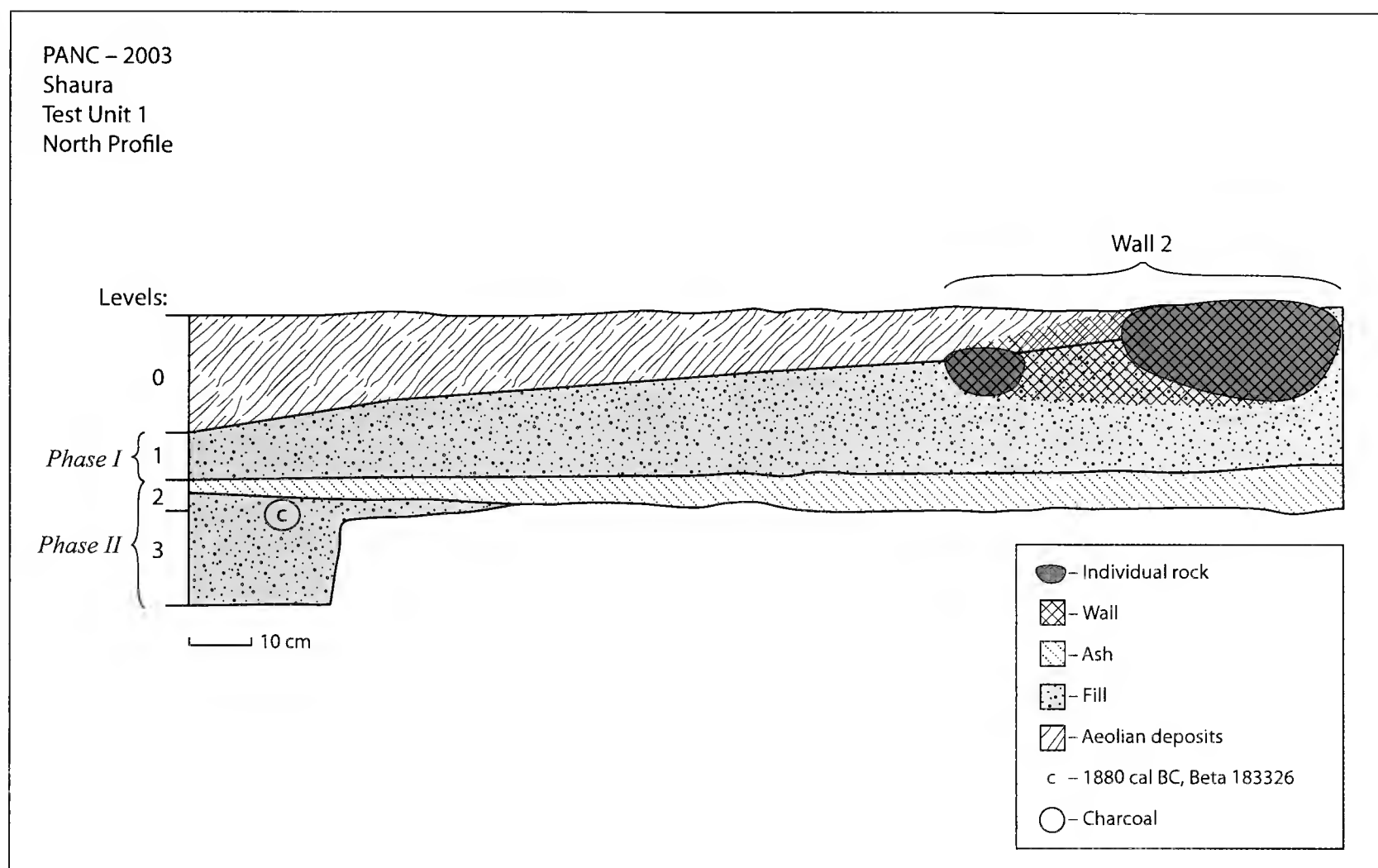


FIG. 59. Shaura, Test Unit 1.

probably Late Archaic occupations in the four valleys of the Norte Chico. These survey data strongly indicated that the cluster of sites first identified in the Supe Valley and now shown to extend across four valleys is part of an emergent regional system of cultural complexity.

Comparing the radiocarbon dates among the six sites tested in 2003 (Table 40), some patterns in occupation can be identified. The largest sites, Porvenir, Caballote, and Huaricanga, all have the earliest and longest occupations. Although this might be due to obtaining more dates from these sites, looking at their respective distributions shows that while there are fewer dates from Cerro Blanco 1, Cerro Blanco 2, and Shaura, they all cluster at the end of the Late Archaic and beginning of the Initial Period. Looking at the specific chronologies for the three largest sites, we find continuous blocks of dates, with reasonable confidence ranges, that show long-term occupation of each. In all three of these figures, the dark vertical lines mark the weighted average calibration of the earliest and latest dates that bracket the continuous clusters of dates. Dates for Porvenir cluster between 2840 and 1750 Cal BC (Table 4); for Caballote, dates cluster between 2730 and 1890 Cal BC (Table 11); and for Huaricanga, dates cluster between 2800 and 2220 Cal BC (Table 31). There are earlier and later dates at all three sites that fall outside the continuous clusters. These charts do not confirm one way or another whether these “outlier” dates reflect earlier or later activities at these sites. The breaks in the charts may be artifacts of gaps in the excavation record, indications of contaminated or orphan samples, or evidence of some limited level of early/late activity. The dates at Shaura, Cerro Blanco 1, and Cerro Blanco 2, taken together with the various early dates from Porvenir, Caballote, and Huaricanga, indicate that

there was most likely an occupation in the Fortaleza Valley that cut across the transition between the Late Archaic and the Initial Period. The occupation of the valley in this later period, however, was shifting away from the large sites with the largest mounds toward smaller sites with shorter occupations. Definitive chronology for Shaura, unfortunately, will forever remain an unknown, as it has been so thoroughly destroyed. Based on the radiocarbon dates reported here as well as on direct surface observations, all three of the large early sites as well as Cerro Blanco 2 were revisited and reused in later time periods. All have significantly later (Early Horizon to Middle Horizon) cemetery areas that have been heavily looted. It is significant to note that in both Porvenir and Cerro Blanco 2, the sunken circular courts and surrounding architectural features were specifically targeted as burial areas in later times (Haas & Creamer, in press). These later intrusions may indicate later groups claiming a hereditary relationship with the ancient population or using interment in an abandoned site as a way to legitimize political acts. The revisiting and reoccupation of sites is a common phenomenon with a variety of purposes and has ancient roots at these sites.

Comparing dates from all six sites, it is apparent that the three largest sites were all constructed and utilized over a span of centuries in the middle of the third millennium BC and that all were contemporaneous with each other. The idea of a sequence of dominant centers, with regional leadership passing from one site to the next, seems unlikely in the present context. Competition and negotiation among similar-sized centers seems likely, a possible model of peer-polity model interaction (Renfrew, 1986; Vega-Centeno, 2005; Creamer et al., 2006).

In addition to the six sites tested as part of the present project, Cerro Lampay, a small mound/sunken circular court site across the valley from Caballete, was extensively excavated by Vega-Centeno in the early 2000s (Vega-Centeno, 2005, 2007). The cluster of calibrated dates from Cerro Lampay ranges from 2480 to 2130 Cal BC. This would make it fully contemporaneous with the latter half of occupation at the three large sites in the valley. Distribution patterns based on GIS modeling raise the possibility that Cerro Lampay may have been an offshoot or daughter community from one of the larger sites, probably Caballete (Rutherford, 2008). One additional site, Cerro de La Cruz, situated between Huaricanga and Shaura, was constructed with *shicra* bags visible in looted areas and lacked ceramics on the surface and in exposed profiles. While we were unable to test this site, it appears likely to have been occupied during the Late Archaic as well. In total, then, there are seven confirmed and probably eight Late Archaic mound sites identified in the lower valley of the Fortaleza River.

Stratification and Radiocarbon Dates

The majority of the dates reported here involved traditional radiocarbon counting techniques that require 20 g or more of sample material and generally give a wide standard deviation range of ± 60 –90 years. This means that the date is likely to fall within a span of 120–180 years. Accelerator mass spectrometry (AMS) technology requires less material and generally gives a narrower range of dates, (generally between ± 15 and 50 years), though again it does not yield an “exact” date. All but two of the samples in the present report are traditional, non-AMS dates, as the broader range of possibilities was considered acceptable given the research questions of the project. The broad range produced by traditional radiocarbon dates makes it difficult to assign a specific date to any given deposit. As a result, the average calibrated dates do not always correspond to stratigraphic superpositioning of deposits. Thus, we found that the average calibrated dates from upper deposits could be older than the average calibrated dates from stratigraphically lower deposits. The significance of this pattern is twofold. First, average calibrated dates can give a false impression of precision. They function for broad comparative purposes but not to provide precise dates for any given association. Second, in many deposits, the broad range of results provided by standard count radiocarbon dates can often exceed the entire period of deposition or use of the location being studied. Accordingly, an accurate absolute chronology for any large preceramic site requires analysis of a substantial number of radiocarbon dates, all of which should be dated with samples of annual plant fibers analyzed with AMS. It may be possible to construct relative chronologies for the Late Archaic sites in the Norte Chico region based on characteristics such as building techniques, weaving styles, or stone tool types; however, such relative chronologies will require suites of AMS radiocarbon dates from multiple excavation units distributed across any large site. Efforts to build relative chronologies without large suites of radiocarbon dates are at best a rough estimation (cf. Shady, 2004, 2006).

The Late Archaic Period in the Fortaleza Valley

The radiocarbon dating for the Fortaleza sites has broad ramifications for interpreting the chronology of the Late

Archaic. These new data yield broader vision of the development and extent of emergent polities in the Norte Chico region and the Andes as a whole. The Norte Chico was something of an enigma for archaeologists for much of the 20th century. Investigators recognized the existence of a complex of apparently early sites in the Norte Chico region as early as the 1940s, when Kosok and Schaedel (Kosok, 1965) reported the presence of sites in this area that lacked ceramics on the surface. Kosok called this large group of seemingly anomalous sites the “Pativilca Complex.” Willey and Corbett (1954) conducted excavations at Aspero in the Supe Valley in the late 1940s but did not recognize it as early. It was on Willey’s return to Aspero with Moseley that the site was recognized as “preceramic,” although there were no radiocarbon dates available at that time (Moseley & Willey, 1973). Feldman (1980) provided the first radiocarbon dates for Aspero, dating to the third millennium BC. While working at this coastal maritime site Feldman (1980, 2009) also conducted informal surveys in surrounding areas and noted the presence of what appeared to be more early sites in the region. Pozorski and Pozorski (1990) made similar observations. Engel (1987) recorded the early sites in the Pativilca Valley but did not immediately recognize them as unusual or early. Zechenter (1988) conducted sample excavations at several sites in the Supe Valley and recovered radiocarbon samples showing that at least two of the big sites were occupied in the period between 3000 and 1800 BC. Vega-Centeno et al. (1998) recorded all the major early sites in the Fortaleza Valley but identified them as belonging to the Initial Period. It was not until the work of Shady et al. (2001) at Caral, however, that chronological data were acquired and the Late Archaic date and anthropological significance of the Norte Chico region was more widely recognized and accepted.

Shady (2004, 2009) identified a number of sites in the Supe Valley as dating to the period from 3000 to 1800 BC. In 2002, the Proyecto Arqueológico Norte Chico conducted test excavations in the Pativilca Valley (Creamer et al., 2007) and identified six large sites dating to the Late Archaic. The present project identified six more sites in the Fortaleza Valley as Late Archaic. The excavations by Vega-Centeno at Cerro Lampay identified it as a Late Archaic site as well, and systematic survey of the lower valley has identified at least two more sites that have the characteristics of the Late Archaic (Perales, 2007). Cardenas (1979) conducted a survey in the Huaura Valley in the 1970s that included Late Archaic sites. Fung (1988, 2004) tested the site of Bandurria, a site on the littoral in the Huaura Valley, the southernmost valley in the Norte Chico region, and obtained radiocarbon dates indicating that there were burials at the site dating to the Middle Archaic as well as the Late Archaic. Chu’s subsequent excavations at Bandurria have demonstrated a major Late Archaic occupation at the site, with monumental architecture and at least one large sunken circular court. Survey in the Huaura Valley revealed yet more sites that lack ceramics and have terraced platform mounds, sunken circular courts, and *shicra* bag construction (Nelson & Ruiz, 2005). Altogether, today over 30 major sites in the four valleys of the Norte Chico are identified as having been occupied during the period from 3000 to 1800 BC.

From the radiocarbon dates obtained in 2003 and 2004 discussed here, there is now evidence that the U-shape site layout pattern originated during the Late Archaic. Porvenir and Caballete, both of which were occupied by the mid-third

millennium BC and possibly earlier (Table 3; Table 11), have a marked U-shaped layout that is partially though not completely symmetrical (Fig. 2; Fig. 11). It appears that sections of Late Archaic sites were built at different points in time based on the repeated construction of mound/circular court units that, in addition to serving a ceremonial purpose on their own, were situated to maintain and extend the U-shaped layout. Not all Late Archaic sites were arranged in this way, as demonstrated by Huaricanga (Table 31), which dates to the same period and consists of a linear series of overlapping structures (Fig. 40; Fig. 41). The major site of Caral in the Supe Valley also does not have a U-shaped arrangement of its mounds (Shady, 2004). Thus, a pattern appears to have been developing that was not adopted by all the major centers in the region, suggesting a degree of independence among different sites in the planning and location of structures.

The Late Archaic sites in the Norte Chico region demonstrate a major investment of labor in construction of pyramids and sunken courts. Dedication of labor to construction is shown by the number of sites with monumental architecture and by the labor involved, including the weaving of *shicra* bags that were used to haul rock, and the volume of construction. Building efforts included retaining walls subsequently filled with *shicra* to create platforms that were then topped with clay floors. The excavation of circular courts was a further investment of labor that took place at sites across the region, with up to three circular courts identified at a single site. Walls and floors were finished with thick layers of clay plaster tempered with plant fiber. Finer plaster was sometimes tinted with colored clay. Surfaces were frequently remodeled with additional layers of plaster or by altering the features of a particular space, such as the series of remodeled structures identified at Huaricanga (Fig. 44).

At the sites tested, ample evidence of residence was identified by the presence of small-scale architecture, cooking facilities, and domestic trash. Trash deposits varied in thickness from a few centimeters to almost a meter deep, and blackened rocks from cooking with heated stones, or *pachamanca* cooking, were recovered from midden deposits. Small shell fragments, charcoal, and lithics dispersed on the surface proved to indicate areas of short-term residential structures, such as windbreaks, lean-tos, and post and brush structures associated by hearths and midden deposits despite the absence of surface irregularities or remains of structures (Wulffen 2009).

In contrast to the evidence of labor investment in construction, little evidence of craft specialization was recovered apart from weaving of a variety of wild plant fibers into *shicra* bags, mats, nets, string, and rope. Specialized production areas for making woven goods were identified in at least two places at Caballote, and a thick layer of fiber was identified at Cerro Blanco 2. Small lengths of cloth, bags, and belts were created by looping and twining plant fibers and, to a much lesser extent, cotton, with very little weaving that involved separate warp and weft threads. Even that was finger weaving, with no evidence of the use of looms until the Initial Period (Doyon-Bernard, 1990).

The testing done in the Fortaleza Valley in 2003 and 2004 expands on the broad base of data provided by other researchers working in the Norte Chico region over the past 50 years or more. Collectively, archaeological work in the region now paints an extraordinary picture of cultural

flourishing in this region during the period from 3000 to 1800 BC. Although there are somewhat similar, single, large sites located in other parts of Peru, such as Sechin Bajo in the Casma Valley (Fuchs et al., 2008), El Paraiso in the Chillón Valley (Engel, 1966), and La Galgada in the upper reaches of the Santa Valley (Grieder et al., 1988), the concentration of sites in the Norte Chico is unparalleled anywhere in South America—or indeed the world—at that time period. The social, political, and economic relationship among these sites remains enigmatic and will take years more excavation by investigations in all four valleys. Although there has been an argument presented that the site of Caral in the Supe Valley was the capital of a broad regional state (Shady, 2006; Shady & Leyva, 2003), empirical evidence to support this theory has not yet been presented. At none of the sites tested in either the Pativilca Valley or the Fortaleza Valley is there any indication that they were under the political hegemony of Caral or any other site.

There are several challenges to establishing a more comprehensive understanding of the nature of the relationship among sites within and between the valleys of the Norte Chico. Fine-grained absolute dating is probably the first and foremost of these challenges. A number of sites, including Caral (Shady et al., 2001; Shady, 2004, 2009), Porvenir, Caballote, and Huaricanga, all have suites of radiocarbon dates that span a millennium or more. In addition to exceptionally long occupations, these sites are quite large and have virtually continuous remodeling, expansion, and architectural reorganization. As a result, thus far, it is impossible to firmly establish periods of absolute contemporaneity or particular periods of building or growth at individual sites. Such analyses will take considerably more work and many more radiocarbon dates at all these sites. A second challenge is the lack of pottery and other specialized craft goods that might be useful in determining centers of production, distribution of luxury goods, or control of specific resources. Late Archaic sites, compared to any subsequent time period in Andean prehistory, have a very limited and comparatively simple material culture. In other time periods and other areas, patterns in the manufacture and distribution of material culture are primary vehicles for determining patterns of intersite interaction and organization. Finally, there has been significant destruction of many of the Late Archaic sites. In the Fortaleza Valley, this is most notable in the site of Shaura, which was almost completely destroyed in the latter decades of the 20th century. Unfortunately, almost all the sites in the Pativilca Valley have been subjected to major damage (Creamer et al., 2007), as have most of the Late Archaic sites recorded in the Huaura Valley (Nelson & Ruiz, 2005). This tragic loss of resources vital to telling the story of the early emergence of a distinctive Andean society means that there will always be some gaps in the story; however, careful and judicious excavation of the sites that have not been destroyed will allow us to fill in the primary elements of the cultural development.

The testing in the Fortaleza Valley further extends our understanding of the Norte Chico region as a major center for the “pristine” emergence of complex polities in the Andean region (Fried, 1967; Haas, 1982; Shady & Leyva, 2003). Pristine in this sense is not used to mean development without outside contacts but rather indicates the development of complexity without the influence of already existing complex

polities. In this one small cluster of coastal valleys at the beginning of the third millennium BC several sites appeared both on the coast and inland. Although we know little of the founding of any of these sites, we do know that they began building large-scale communal architecture very early in the millennium. By the end of the millennium, there were six to eight sites in each of the four valleys. These sites provide a window to understanding how the first leaders emerged endogenously in incipient centralized populations and how leaders began to exercise power over their respective populations (Haas & Creamer, 2004, 2006). For this, we need to understand the role of economics, religion, and intersite relationships in the origin and development of power relations in this extraordinary early political system.

The comparatively dense cluster of large sites in the Norte Chico, all with large-scale communal architecture, requires a serious reconsideration of the early cultural history of the Andean region. In a region where there were ancient patterns of mobility between highlands and coasts over the course of 1000 years, it seems highly likely that knowledge of the Norte Chico cultural phenomenon would have been widespread. What effect or influence this “precocious” (Shady, 2003b) cultural development would have had on subsequent evolution of the Andean political landscape still remains to be defined. At the same time, however, the Late Archaic Norte Chico development must be taken into consideration in assessing the beginnings of cultural complexity in all parts of the Andean region after about 2500 BC. This is to argue not that the Norte Chico represented a kind of “Mother Culture” for the Andes but rather that the precocious development in this area was an integral part of the ancient or deep history of the region as a whole.

Acknowledgments

We thank the directors of the community organizations and the civil authorities of the communities that neighbor the sites where we worked in 2003, including Cerro Blanco, Huaricanga, and Shaura. We recognize the support of the mayor of the Municipal District of Paramonga, Ing. Enrique Respicio Lopez; the mayor of the Municipality of Pativilca, Dr. Arturo Espinosa; and the town council member responsible for cultural events in Pativilca, Katy Ly Albuja, all of whom displayed their affection for the region through their helpful collaboration.

Crucial to the success of the project was the participation of all the members of PANC who so ably forged an excellent working group and showed their commitment to the objectives of the project. Each and every person worked their hardest to allow us to reach the goals set for this investigation. Two anonymous reviewers made detailed comments that helped us improve the manuscript in many ways. We take full responsibility, however, for any errors.

We gratefully acknowledge the support of the National Science Foundation Collaborative Research Grants to Haas and Creamer, the Field Museum, Northern Illinois University (NIU), and especially the NIU Center for Latino and Latin American Studies. Friends who have supported our research include James H. Duncan Sr., James and Susan Hannigan, Jeri Alles and David Hanley, Donald and Marianne Tadish-Marzec, and others. Thank you all.

Field Crew for 2003 and 2004 Field Seasons

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Literature Cited

- ASENCIOS, G. 2009. Investigaciones de las shicras en el sitio preceramico de Cerro Lampay. Licenciatura Thesis, Faculty of Social Science, Universidad Nacional Mayor de San Marcos, Lima.
- AUTHIER, M. 2012. Monument, memory, and exchange at Huaricanga, Peru. Paper presented at the 77th annual meeting of the Society for American Archaeology, Nashville, Tennessee.
- BAZAN PEREZ, A. 2012. Reocupaciones de complejos monumentales del period Arcaico Tardio en el valle de Fortaleza, Costa Nor Central del Peru. Licenciatura Thesis, Faculty of Social Science, Universidad Nacional Mayor de San Marcos, Lima.
- BIRD, J. B., J. HYSLOP, AND M. D. SKINNER. 1985. The preceramic excavations at the Huaca Prieta, Chicama Valley, Peru. *Anthropological Papers of the American Museum of Natural History*, 62: 1–294.
- BONNIER, E. 1997. Prehispanic architecture and civilization in the Andes, pp. 120–144. In Bonnier, E. and H. Bischof, eds., *Preceramic Architecture in the Andes: The Mito Tradition*. Reiss Museum, Mannheim, Germany.
- BURGER, R., AND L. SALAZAR-BURGER. 1986. Early organizational diversity in the Peruvian highlands: Huaricoto and Kotosh, pp. 65–82. In Matos, R. and S. Turpin, eds., *Andean Archaeology*. UCLA Institute of Archaeology, Los Angeles.
- CARDENAS, M. 1979. A chronology of the use of marine resources in ancient Peru. *Boletin Arqueologica*, Pontifica Universidad Catolica del Peru, 104: 1–30.
- CARNEIRO, R. 1970. A theory of the origin of the state. *Science*, 189: 733–738.
- CREAMER, W. 2007. Archaeological investigation of Late Archaic sites (3000–1800 BC) in the Pativilca Valley, Peru. *Fieldiana: Anthropology*, n.s., 40: 1–79.
- CREAMER, W., AND J. HAAS. 2008. Monumental architecture as a process of emergence: An example from the Norte Chico, Peru. Paper presented at the 73rd annual meeting of the Society for American Archaeology, Vancouver, B.C.
- CREAMER, W., A. RUIZ, AND J. HAAS. 2006. Late archaic regional organization in the Norte Chico, Peru. Paper presented at the 71st annual meeting of the Society for American Archaeology, San Juan, Puerto Rico.
- DAGGETT, R. 1987. Toward the development of the state on the north central coast of Peru, pp. 70–82. In Haas, J., T. Pozorski and S. Pozorski, eds., *The origins and development of the Andean state*. Cambridge University Press, Cambridge.

- DOYON-BERNARD, S. J. 1990. From twining to triple cloth: experimentation and innovation in ancient Peruvian weaving (ca. 5000–400 B.C.). *American Antiquity*, **55**: 68–87.
- ENGEL, F. 1966. Le complexe précéramique d'el Paraiso (Pérou). *Journal de la Société des Américanistes*, **LV-1**: 43–95.
- . 1987. De las begonias al maíz: Vida y producción en le Perú antiguo. Universidad Agraria La Molina, Ediagraria, Lima, Peru.
- FELDMAN, R. 1980. Aspero, Peru: Architecture, subsistence economy and other artifacts of a Preceramic maritime chiefdom. Unpublished PhD dissertation, Harvard University, Cambridge, Massachusetts.
- . 2009. Talking dogs and new clothes, or the maritime foundations hypothesis revisited, pp. 89–98. *In* Marcus, J. and P. R. Williams, eds., *Andean Civilization*. Cotsen Institute of Archaeology, Los Angeles.
- FRIED, M. 1967. *The Evolution of Political Society: An Essay in Political Anthropology*. Random House, New York.
- FUCHS, P., R. PATZSCHKE, G. YENQUE, AND J. BRICENO. 2008. Del Arcaico Tardío al Formativo Temprano: Las investigaciones en Sechin Bajo, valle de Casma. *In* Kaulicke, P. and Y. Onuki, eds., *El Periodo Formativo: Enfoques y evidencias recientes*. Segunda Parte. *Boletín de Arqueología PUCP*, **10**: 111–166.
- FUNG PINEDA, R. 1988. The Late Preceramic and Initial Period, pp. 67–96. *In* Keatinge, R., ed., *Peruvian Prehistory*. Cambridge University Press, Cambridge.
- . 2004. Reseña del salvamento arqueológico en Bandurria. Período Precerámico Tardío, pp. 325–336. *In* Quehaceres de la arqueología Peruana—Rosa Fung, compilación de escritos. Edición del Museo de Arqueología y Antropología, Lima.
- GRIEDER, T., A. BUENO MENDOZA., C. E. SMITH, JR. AND R. M. MALINA., EDS. 1988. *La Galgada Peru: A preceramic culture in transition*. University of Texas Press, Austin.
- HAAS, J. 1982. *The Evolution of the Prehistoric State*. Columbia University Press, New York.
- HAAS, J., AND W. CREAMER. 2004. The Late Archaic in Andean Prehistory: 3000–1800 BC. pp. 35–50. *In* Silverman H, ed., *Andean Archaeology*, Blackwell Global Archaeology Series. Blackwell Publishers, Oxford.
- . 2006. The crucible of Andean civilization. *Current Anthropology*, **47**: 745–775.
- . 2010. Late archaic temples in the Norte Chico region of Peru. Paper presented at the 38th annual meeting of the Midwest Conference on Andean and Amazonian Archaeology and Ethnohistory, IPFW, Fort Wayne, Indiana.
- . In press. Intrusiveness at Late Archaic (3000–1800 BCE) sites in the Norte Chico region of Peru. *In* Chicoine, D. and R. Mann, eds., *Archaeologies of Intrusiveness*. University of Colorado Press, Boulder.
- HAAS, J., W. CREAMER, AND A. RUIZ. 2004. Dating the Late Archaic occupation of the Norte Chico region in Peru. *Nature*, **432**: 1020–1023.
- ISHIDA, E. 1960. Andes: The report of the University of Tokyo Scientific Expedition to the Andes in 1958. Andean Institute, University of Tokyo, Tokyo.
- IZUMI, S., AND T. SONO. 1963. Andes 2. Excavations at Kotosh, Peru, 1960. University of Tokyo Press, Tokyo.
- IZUMI, S., AND K. TERADA. 1972. Andes 4: Excavations at Kotosh, Peru, 1963 and 1966. University of Tokyo Press, Tokyo.
- KIGOSHI, K., D. LIN, AND K. ENDO. 1962. Gakushuin natural radiocarbon measurements I. *Radiocarbon*, **4**: 84–94.
- KOSOK, P. 1965. *Land, Life and Water in ancient Peru*. Long Island University Press, New York.
- MOSELEY, M. E. 1975. *Maritime Foundations of Andean Civilization*. Cummings, Menlo Park, California.
- . 1992. Maritime Foundations and Multilinear Evolution: Retrospect and Prospect. *Andean Past*, **3**: 5–42.
- MOSELEY, M. E., AND L. K. BARRETT. 1969. Change in Preceramic twined textiles from the central Peruvian coast. *American Antiquity*, **34**: 162–165.
- MOSELEY, M. E., AND G. R. WILLEY. 1973. Aspero, Peru: A reexamination of the site and its implications. *American Antiquity*, **38**: 452–468.
- NELSON, K., AND A. RUIZ. 2005. Proyecto de investigación arqueológica: Valle de Huaura, Perú. Informe final. Instituto Nacional de Cultura, Lima.
- PERALES, M. F. 2006. Proyecto de investigación: Reconocimiento arqueológico en el valle bajo de Pativilca, Lima-Peru. Informe final 2006. Instituto Nacional de Cultura, Lima.
- . 2007. Proyecto de investigación: Reconocimiento arqueológico en el Valle de Fortaleza, Lima-Ancash, Peru. Informe final 2007. Instituto Nacional de Cultura, Lima.
- POZORSKI, S. 1990. Reexamining the critical Preceramic/Ceramic Period transition: New data from coastal Peru. *American Anthropologist*, **92**: 481–491.
- POZORSKI, S., AND T. POZORSKI. 1987. *Early Settlement and Subsistence in the Casma Valley, Peru*. University of Iowa Press, Iowa City.
- QUILTER, J. 1985. Architecture and chronology at El Paraiso, Peru. *Journal of Field Archaeology*, **12**: 179–197.
- . 1992. To fish in the afternoon: Beyond subsistence economies in the study of early Andean civilization. *Andean Past*, **3**: 111–125.
- RAYMOND, J. S. 1981. The maritime foundations of Andean civilization: A reconsideration of the evidence. *American Antiquity*, **46**: 806–821.
- RENFREW, C. 1986. Peer-polity interaction and sociopolitical change, pp. 1–18. *In* Renfrew, C. and J. Cherry, eds., *Peer-Polity Interaction and Sociopolitical Change*. Cambridge University Press, Cambridge.
- RUIZ, A., W. CREAMER, AND J. HAAS. 2008. Investigaciones arqueológicas de sitios Precerámicos en el Valle de Pativilca, Norte Chico, Peru. Instituto Cultural del Norte Chico, Barranca, Peru.
- RUTHERFORD, A. 2008. *Space and Landscape in the Norte Chico Region, Peru: An Analysis of Socio-Political Organization through Monumental Architecture*. M.A. thesis, Anthropology Department, Northern Illinois University.
- SANDWEISS, D., J. RICHARDSON, III., E. REITZ, H. ROLLINS, AND K. MAASCH. 1996. Geoarchaeological evidence from Peru for a 5000 years BP onset of El Niño. *Science*, **273**: 1531–1533.
- SANDWEISS, D., R. SHADY SOLIS., M. E. MOSELEY, D. K. KEEFER, AND C. R. ORTLOFF. 2009. Environmental change and economic development in coastal Peru between 5800 and 3600 years ago. *Proceedings of the National Academy of Sciences*, **106**: 1359–1363.
- SCHIFFER, M. 1986. Radiocarbon dating and the “old wood” problem: The case of the Hohokam chronology. *Journal of Archaeological Science*, **13**: 13–30.
- SHADY, R. 1997. *La ciudad Sagrada de Caral-Supe en los albores de la civilización en el Perú*. Universidad Nacional Mayor de San Marcos, Lima.
- . 2003a. Reprinted. Caral-Supe: La civilización más antigua del Perú y América., 335–340, *In* Shady, R. and C. Leyva, eds., *La ciudad sagrada del Caral-Supe: Los orígenes de la civilización andina y la formación del estado prístino en el antiguo Perú*. Instituto Nacional de Cultura, Lima, Peru. Originally printed 2002. *Cultura Peruana*, **3**: 60–68.
- . 2003b. Reprinted. Caral-Supe y la costa norcentral del Perú: La cuna de la civilización y la formación del estado prístino, 139–146, *In* Shady, R. and C. Leyva, eds., *La ciudad sagrada del Caral-Supe: Los orígenes de la civilización andina y la formación del estado prístino en el antiguo Perú*. Instituto Nacional de Cultura, Lima, Peru. Originally printed 2000. *Historia de la cultura peruana*, **1**: 45–87, Fondo Editorial del Congreso del Perú, Lima.
- . 2004. *Caral: La ciudad del fuego sagrado*. Centura SAB, Lima.
- . 2006. La civilización Caral: sistema social y manejo del territorio y sus recursos: su trascendencia en el proceso cultural andino. *Boletín de Arqueología PUCP*, **10**: 59–89.
- . 2009. Caral-Supe y su entorno natural y social en los orígenes de la civilización, pp. 99–120. *In* Marcus, J. and P. R. Williams, eds., *Andean Civilization*. Cotsen Institute of Archaeology, Los Angeles.
- SHADY, R., J. HAAS, AND W. CREAMER. 2001. Dating Caral, a Preceramic urban center in the Supe Valley on the central coast of Peru. *Science*, **292**: 723–726.

SHADY, R. AND C. LEYVA., EDS. 2003. *La ciudad sagrada de Caral-Supe: Los orígenes de la civilización andina y la formación del estado prístino en el antiguo Perú*. Instituto Nacional de Cultura, Lima.

STANISH, C. 2006. Comment on: The crucible of Andean civilization. *Current Anthropology*, **47**: 763–764.

VEGA-CENTENO, R. 2005. *Ritual and architecture in a context of emergent complexity: A perspective from Cerro Lampay, a Late Archaic site in the central Andes*. Unpublished PhD dissertation. University of Arizona, Tucson.

———. 2007. Construction, labor organization, and feasting during the Late Archaic Period in the Central Andes. *Journal of Anthropological Archaeology*, **26**: 150–171.

———. 2010. Cerro Lampay: architectural design and human interaction in the north central coast of Peru. *Latin American Antiquity*, **21**: 115–145.

VEGA-CENTENO, R., L. F. VILLACORTA, L. E. CÁCERES, AND G. MARCONE. 1998. Arquitectura monumental temprana en el valle medio de Fortaleza. *Boletín de Arqueología PUCP*, **2**: 219–238.

WILLEY, G. R., AND J. M. CORBETT. 1954. *Early Ancon and Early Supe Culture: Chavin Horizon Sites of the Central Peruvian Coast*. Columbia University Press, New York.

WILLIAMS, C., AND M. MERINO. 1979. *Inventario, catastro y delimitación del patrimonio arqueológico del Valley de Supe*. Report submitted to the Instituto Nacional de Cultura, Lima.

WILSON, D. J. 1981. Of maize and men: A critique of the maritime hypothesis of state origins on the coast of Peru. *American Anthropologist*, **83**: 93–120.

———. 1987. Reconstructing patterns of early warfare in the Lower Santa Valley: New data on the role of conflict in the origins of complex north coast society, pp. 56–69. *In* Haas, J., T. Pozorski and S. Pozorski, eds., *The Origins and Development of the Andean State*. Cambridge University Press, Cambridge.

WULFFEN, J. 2009. *Two test excavations at Caballete, Norte Chico, Peru*. MA thesis, Northern Illinois University, Dekalb.

ZECHENTER, E. 1988. *Subsistence strategies in the Supe Valley of the Peruvian central coast during the Complex Preceramic and Initial Periods*. Unpublished PhD dissertation, University of California, Los Angeles.

TABLE 1. Andean chronology.

Date	Period (Rowe)	Stage (Lumbreras)
AD 1440–1532	Late Horizon	Inca Empire
AD 1100–1400	Late Intermediate Period	regional states and kingdoms
AD 600–1100	Middle Horizon	Huari Empire
200 BC–AD 600	Early Intermediate Period	regional cultures
1000–200 BC	Early Horizon	Middle and Late Formative
1700–1000 BC	Initial Period	Early Formative
3000–1800 BC	Late Preceramic	Late Archaic
4500–3000 BC	Middle Preceramic	Middle Archaic
6000–4500 BC	Early Preceramic	Early Archaic
12,000–6000 BC	Early Preceramic	hunter-gatherers

TABLE 2. Architecture at Fortaleza Valley sites.

Site/Sector	Size (m)	Height (m)	Comments
Porvenir			
A	86 × 61	10	
Associated circular court	30	n.a.	
B	55 × 49	8	
Associated circular court	20	n.a.	
C	51 × 29	5	
D	47 × 45	7	
E (north)	28 × 33	4	
E (south)	43 × 41	6	
F	61 × 49	10	
G	102 × 59	8	
H			concentrated shell and dark soil
I			walled enclosure
J			looted cemetery
K			looted cemetery
Caballote			
A	125 × 54	17	
Associated circular court	15		
B	41 × 39	5	
C	59 × 55	7	
Associated circular court	25		
D	120 × 47	7	
E	69 × 53	7	
Associated circular court	undetermined		
F	200 × 200		area bounded by structures/sectors A, E, and canal
Cerro Blanco 1			
Sector A	34 × 33	5	
Sector A, South	irregular	3	
Sector B,	29 × 20	5	
Sector C	73 × 42	5	
Cerro Blanco 2			
A	120 × 68	4	
Associated circular court	20		
Huaricanga			
A ¹			
B1	47 × 41	4	
B2	29 × 29	3	
C1	285 × 100	15	
C2	150 × 41	7	
C3	53 × 38	4	
Shaura			
A ²	67 × 52	10	
Associated circular court	24		

TABLE 3. Radiocarbon dating from Caballote comparing annual plant fiber (APF) and charcoal.

Sector	Unit	Level/Layer	Calibrated	RCYBP	Material	Lab
A	4	pit fill	2320	3870	APF	ISGS-5721
A	4	pit fill	2700	4110	charcoal	Beta-199777
C	2	11	2120	3720	APF	GEO-31584
C	2	11	2640	4040	charcoal	GEO-31587
C	2	12	2570	4020	APF	Beta-199776
C	2	12	2960	4300	charcoal	Beta-199058

TABLE 4. Radiocarbon dates from Porvenir.

Sample	Provenience	Level/ Layer	Material	Lab	Cal BC	RCYBP \pm	13c/12c	68.2—1 σ range	95.4—2 σ range
a	Sector A, Profile 2	C	mixed plant fibers	GX-31582	1750	3430 70	-10.7	1876-1842 (17.0); 1820-1797 (10.6); 1781-1662 (66.9); 1652-1639 (5.5)	1915-1604 (95.2); 1588-1534 (4.8)
b	Sector A, Profile 2	D	mixed plant fibers	GX-30510	2010	3630 70	-11.5	2129-2088 (18.9); 2047-1899 (81.1)	2200-2158 (4.2); 2155-1869 (89.9); 1846-1809 (3.3); 1805-1775 (2.5)
c	Sector A, Profile 2	D	fiber bag	ISGS-5513	2730	4160 70	-13.1	2877-2834 (20.6); 2817-2664 (75.9); 2646-2638 (3.5)	2899-2571 (99.2); 2512-2504 (0.8)
d	Sector A, TU 3	7	mixed plant fibers	Beta-183323	2370	3890 40	-11.8	2462-2339 (95.2); 2321-2320 (1.4); 2314-2310 (3.4)	2473-2278 (95.5); 2251-2229 (3.3); 2221-2210 (1.3)
e	Sector A, TU 3	7	fiber bag	ISGS-5520	2700	4110 70	-14.3	2862-2807 (24.4); 2758-2718 (16.6); 2706-2577 (59.0)	2880-2558 (92.0); 2554-2550 (0.4); 2537-2491 (7.5)
f	Sector F, Profile 1		mixed plant fibers	GX-31586	1830	3500 70	-10.3	1916-1741 (100.0)	2021-1993 (2.6); 1982-1662 (96.5); 1652-1640 (0.9)
g	Sector F, Profile 1		mixed plant fibers	ISGS-5512	2100	3710 70	-12.5	2202-2019 (95.2); 1994-1981 (4.8)	2332-2327 (0.2); 2299-1900 (99.8)
h	Sector F, Profile 1		fiber bag	GX-30630	2210	3780 60	-11.7	2297-2132 (90.5); 2084-2057 (9.5)	2457-2418 (3.5); 2407-2375 (3.6); 2367-2361 (0.4); 2351-2032 (92.5)
i	Sector F, Profile 1		mixed plant fibers	ISGS-5713	2440	3950 80	-11.3	2570-2514 (24.2); 2502-2338 (71.5); 2322-2309 (4.3)	2837-2815 (1.3); 2673-2200 (98.6); 2157-2155 (0.1)
j	Sector F, Profile 1		mixed plant fibers	Beta-183324	3750	4930 70	-12.2	3777-3647 (100.0)	3943-3855 (12.5); 3846-3833 (1.0); 3823-3632 (84.7); 3558-3538 (1.9)
k	Sector H, TU 1	4	mixed plant fibers	GX-30509	1250	3040 80	-13.8	1411-1208 (96.9); 1200-1196 (1.4); 1139-1135 (1.7)	1489-1481 (0.5); 1455-1048 (99.5)
l	Sector H, TU 1	3	fiber bag	ISGS-5735	2580	4020 70	-12.4	2851-2813 (9.8); 2743-2727 (3.3); 2695-2684 (2.5); 2680-2458 (84.4)	2872-2800 (10.4); 2793-2785 (0.6); 2780-2331 (86.8); 2328-2299 (2.2)
m	Sector H, TU 2	5	<i>shicra</i>	Beta-183325	2330	3850 40	-12	2451-2446 (2.9); 2436-2420 (8.5); 2405-2378 (15.6); 2350-2276 (50.9); 2253-2228 (15.0); 2223-2209 (7.2)	2461-2205 (100.0)
n	Sector H, TU 2	12	charcoal	Beta-199060	2840	4250 40	-26.7	2911-2870 (80.8); 2802-2778 (19.2)	2926-2849 (65.7); 2813-2739 (27.1); 2730-2693 (6.7); 2687-2679 (0.5)

Calibrated date intervals from Porvenir

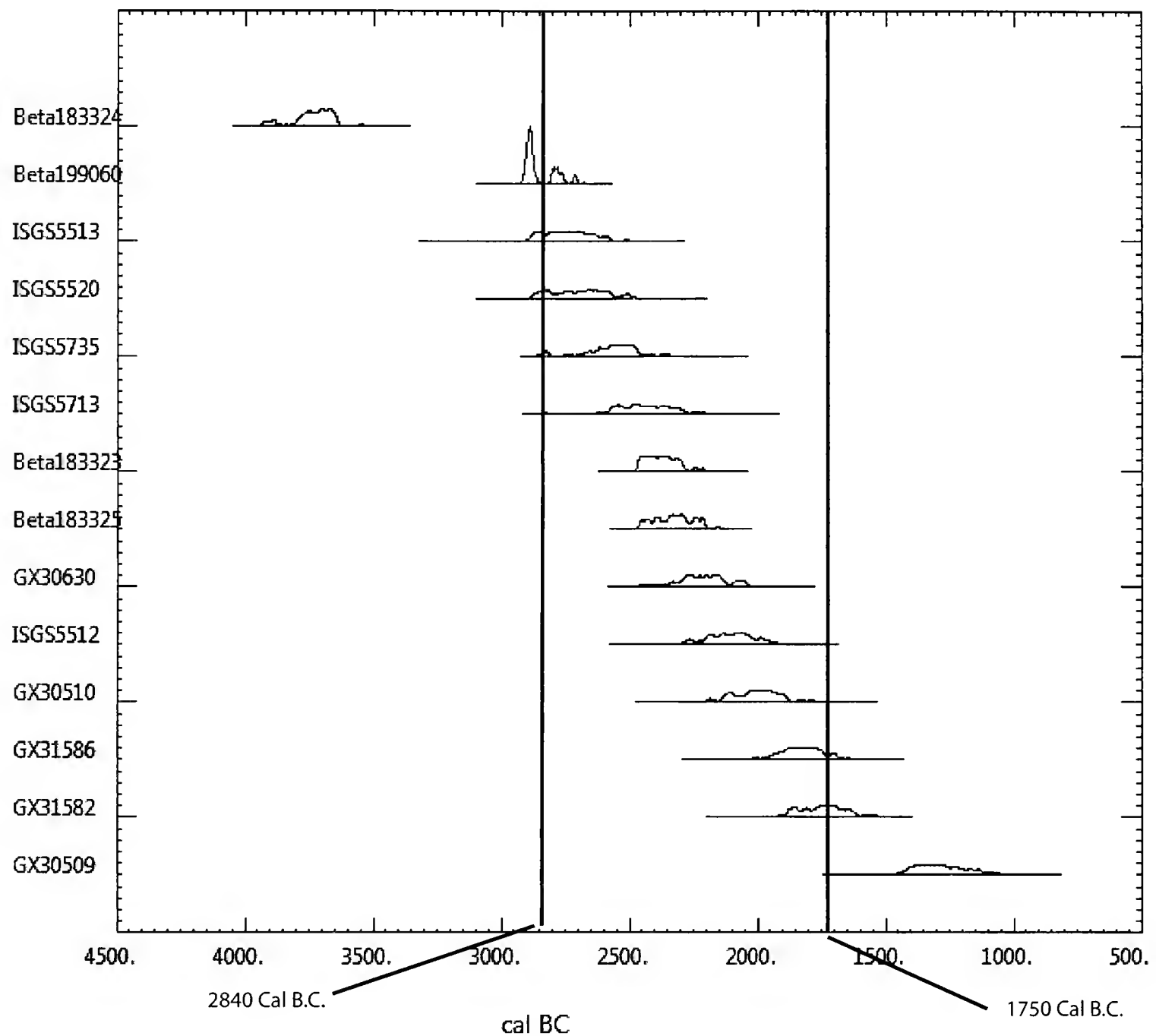


TABLE 5. Porvenir, Sector A, Profile 2.

Phases of occupation (Fig. 4; Table 4a-c)			
Phase	Layers	Description	Dated samples
I	B	Dark soil with small quantities of cultural material.	
II	B', C	Included a small feature containing charcoal, charred plant remains, ashy soil, some fragments of <i>shicra</i> (Layer B'). Contiguous with a use surface of compacted earth that was finer in texture and included more clay than the adjacent layers. Use surface and feature lay over fill with plant fibers (Layer C).	1750 Cal BC (GX-31582), plant fibers (Layer C, Table 4a)
III	D	Thick layer of <i>shicra</i> construction fill.	2010 Cal BC (GX-30510), plant fibers; 2730 Cal BC (ISGS-5513), fragments of a <i>shicra</i> bag (Table 4b, c)

TABLE 6. Porvenir, Sector A, Test Unit 3.

Excavation (Fig. 6)			
Level	Thickness	Description	Contents
0	15	Fine, loose soil, some gravel, patches of caliche.	Shell, lithics.
1	15	Dry light brown soil and sand, angular rock. Midden, including small fragments of clay mortar at the base of the level.	Charcoal, bone, whole mollusk valves, small hank of hair.
2	15	Loose soil, possible remains of remodeling activities, fragments of clay, plaster, plant fiber, burned rock.	Shell, lithics, charcoal, botanical remains, bone.
3	15	Loose soil, fragments of clay, plaster, plant fiber, burned rock.	Shell, lithics, charcoal, botanical remains, bone.
4	15	Dry granular clay and bits of clay mortar mixed with light brown soil. Similar to Levels 2 and 3.	Low-density cultural materials, burned rock, shell, charcoal, botanical remains, textile fragments, hair. Woven, rock-filled <i>shicra</i> bags were in the S corner.
5	6	Soil, large and small angular rock, gravel, fragments of clay mortar, likely construction or remodeling debris. An irregular use surface over the S part of the unit. Partial <i>shicra</i> bag on E side of use surface.	Shell, lithics, charcoal, botanical remains, bone.
6	7	Only excavated on the S side of the unit (1 × 1 m). Two use surfaces, the upper a remodeling of the lower.	Shell, lithics, botanical remains, bone.
7	15	Fine gray soil with angular rock, a base layer below the use surface.	Shell, lithics, botanical remains, charcoal, hair.
Stratigraphy			
Layer	Levels	Description of stratigraphy	Characteristics of layer
A	1–5	Construction fill or possibly trash	Low-density cultural material. Rock, gravel, fragments of clay mortar.
B	3–6	Irregular clay layer/use surface in upper portion of Layer B, most clearly visible in N half of unit. S portion disturbed in the past.	Dark brown fill with gravel and rocks up to 20 cm across.
C	6	Use surface of wet clay on angular rock. Use surface identified in two levels; half the surface was displaced toward the E due to subsidence, water, or seismic action. Thus, part of the use surface was identified in Level 5 on the W side of the test unit and in Level 6 on the E side.	Plant fiber was mixed with the clay of the use surface.
D	7	Use surface at base of shallow layer. Layer C was not a remodeling of Layer D. D was oriented differently than C.	Angular rock roughly covered with clay.
E	7	Just beneath the lowest use surface.	Soil changed from gray to distinctive red-brown, culturally sterile.
Phases of occupation (Table 4a, b)			
Phase	Layers	Description	Dated samples
I	A	Natural deposition postdates use of this locality; gravelly dirt mixed with rock.	
II	B	Use surface of yellowish clay over irregular layer of darker fill, some cultural material. A pit was excavated through this use surface in the S portion of the unit.	
III	C	Clearly defined use surface, layer of clay over layer of rock.	
IV	D, E	Fill between use surfaces, also the lowest use surface. Lower surface oriented differently than use surface above it; did not extend across entire excavation unit. Lower use surface is oldest in unit, shows construction directly on subsoil layer.	<i>Shicra</i> fragment from Layer D was dated 2700 Cal BC (ISGS 5520). Sample of mixed plant fibers extracted from crushed fragment of use surface below Layer D yielded date of 2370 Cal BC (Beta183323) (Table 4d, e).

TABLE 7. Porvenir, Sector F, Profile 1.

Stratigraphy (Fig. 6)		
Layer	Description of stratigraphy	Characteristics of layer
A	Material above Floor 1.	Loose soil.
B	Floor 1.	Fine clay.
C	Subfloor prepared surface below Floor 1.	Gray clay over small rocks.
D	Construction fill.	Angular rock and <i>shicra</i> .
E	Lens of loose soil, indicates period of disuse.	Loose brown soil.
F	Clay floor with one remodeling (Floor 2).	Two clay layers.
G	Wall 1.	Wall of angular rock, plaster along upper surface and former mound exterior—side facing away from cleared slope.
H	Remodeling of the space created by Walls 1 and 2. Filling of a room or plaza area with <i>shicra</i> .	<i>Shicra</i> fill of large and medium angular rock.
I	Floor over Wall 2.	Fine clay.
J	Wall 2.	Angular rock and <i>shicra</i> .
K	Collapse associated with looting.	Loose brown soil.
L	Pocket of burned material.	Blackened cane fragments and ash, recent airborne deposit from adjacent fields.
M	Construction fill comprising one phase of mound construction.	Large angular rock and <i>shicra</i> .
N	Postlooting erosion and collapse of sides of dug-out area.	Loose brown soil, angular rock.

Phases of occupation (Table 4f–j)

Phase	Layers	Description	Dated samples
I	B, C	Occupation of Floor 1, final use of mound. Material above was product of collapse and wind-blown deposition.	
II	D	Period between use of Floor 2 and construction of Floor 1.	
III	E, F	Construction and use of Floor 2 after Wall 1 was built; may have extended across the top of Wall 1.	
IV	G, H	Construction of Wall 1 as a retaining wall and the placing of fill behind it.	Mixed plant fibers from the clay plaster on Wall 1 yielded a date of 3750 Cal BC (Beta-183324) (Table 4j).
V	I, J	Construction of Wall 2, including plastering the wall and placing Floor 3 on top of Wall 2.	Wall 2 yielded a <i>shicra</i> bag fragment that was dated 2210 Cal BC (GX-30630) (Table 4h).
VI	M	Construction fill below Wall 2.	Three samples of plant fibers yielded dates of 2440 (ISGS-5713), 2100 (ISGS-5512), and 1830 Cal BC (GX-31586) (Table 4f, g, i).

TABLE 8. Porvenir, Sector H, Test Unit 1.

Excavation (Fig. 7)			
Level	Thickness	Description	Contents
1	0–30	Sandy aeolian soil, a few small angular rocks, up to 10 cm diameter. Lens of ash in NE corner.	Lithics, shell fragments, a few small fragments of textiles, charcoal.
2	5–16	Silty sandy soil with small rocks. Lens of burned material in the SW corner produced most shell fragments.	Lithics, shell, charcoal.
3	16	Loose soil with gravel on E half and more clayey soil, plant remains, ash, shell in W half. Concentration of rocks on W side was part of a rough wall, angular rock in clay mortar, uneven surfaces on both faces.	Lithics, shell, botanical remains, textile fragment.
4	16–24	Mixed small and medium rocks in soil with clay. Area of collapsed wall in the center, including large rocks and <i>shicra</i> . Caliche around wall made it difficult to excavate.	Shell, charcoal, lithic, plant remains, textile fragments.
5	1–10	Rock, gravel, caliche, difficult to excavate.	Center of the unit contained shell, lenses of ash, lithic fragments, botanical remains, textile fragments.
6	0–14	Rocky soil on E side, caliche throughout.	Small quantity of textile, lithics, shell.

Phases of occupation (Table 4k, l)

Phase	Levels	Description	Dated samples
I	1–3	Former ground surface covered by postoccupational fine aeolian deposits. Distinction between surface–former ground surface from artifact content and soil texture. No structures/activity areas.	
II	3–6	Construction and occupation of a low platform built on sterile, gravelly soil, perhaps incorporating a natural rise in the landscape indicated by gravelly material in NW corner. Wall 1, unplastered retaining wall. Fill on E side of wall different from W side. Fill included large rocks and <i>shicra</i> that leveled the platform approximately 50 cm high. Clay surface identified in Levels 3 and 4 formed platform surface.	<i>Shicra</i> bag fragment from Level 3 dated 2580 (ISGS-5735) Cal BC and mixed plant fibers in Level 4 1250 Cal BC (GX-30509) (Table 4l, k).

TABLE 9. Porvenir, Sector H, Test Unit 2.

Excavation (Fig. 8)			
Level	Thickness	Description	Contents
1	0–12	Sandy soil, patches of caliche.	No artifacts.
2	1–25	Loose soil mixed with a large quantity of rock.	<i>Shicra</i> , shell, lithics, macrobotanical remains.
3	14–18	Compact soil on SW, possibly associated with a feature in SW corner, rock in the rest of the level.	Shell, botanical remains, lithics, charcoal, bone.
4	11–15	Angular rock throughout. E portion is darker and contains more botanical remains than W. Fine-textured soil.	Shell, lithics, botanical remains, bone, charcoal.
5	14–17	Fine, dusty, loose soil; a substantial quantity of rock, lithics, <i>shicra</i> fragments.	Shell, charcoal, bone, botanical remains.
6	15	Fine, dusty, loose soil, small rocks. A large rock in this level was a wall that crossed N to S, 40–50 cm high, Levels 6–12 (Fig. 9).	Diverse organic materials, including string, <i>shicra</i> , leaves, seeds; also clay mortar, lithics, charcoal, bone.
7	6–10	Ash on the W side, with shell, clay mortar, a few lithics.	Abundant textile, fish, charcoal, seeds.
8	4–7	Material from W side of Wall 1 outside of the wall, as the rock in Wall 1 was oriented to make a flat W face.	Quantity of ash, with charcoal, shell, seeds, cobbles, burned rock, fish bone, textiles.
9	15	E side of Wall 1. Rock in a thin layer of clay and plastered mortar fragments, fill behind Wall 1, a retaining wall.	Shell, lithics, charcoal, bone.
10	2	E side of Wall 1, below Level 9 extending to use surface of mortar and small rocks.	Shell, lithics, bone, charcoal.
11	13–17	Below Level 8 on the W side of Wall 1 extending to a use surface of mortar and small rocks.	Lithics, charcoal, fauna, botanical remains, shell, coprolite.
12	26	Wall 1, built on the use surface. Wall was removed, revealing black ash, a use surface that went under the wall.	Botanical remains, lithics, shell, charcoal, bone.
13	20–30	W half of the unit, size decreased due to the quantity of material, and the depth, -130 cm bd. Ashy texture, dark color.	A quantity of charcoal, botanical fragments, burned rock, shell, bone.
14	12–40	To the end of the dark layer in the W half of the unit. Many rocks mixed with midden.	Dense ash, charcoal, large shells, shell fragments.
15	18–21	A depression or hole below the ash layer.	Depression/feature filled with ash, organic remains, shell, charcoal.
16	15–19	Color change from dark brown to light brown gravelly soil.	Mollusk valves up to 10 cm long at top of level, no remains by midlevel. Few lithics, bone, botanical remains.
17	21	Light brown soil, increasingly gravelly through the level.	

Stratigraphy

Layer	Includes	Description of stratigraphy	Characteristics of layer
A	1–6	Remodeling debris or remains of collapsed walls.	Cultural material in loose, dusty, fine, loose tan soil; occasionally compact, many rocks.
B	7, 8	<i>Shicra</i> construction.	
C	9–12	Levels 9 and 10 were excavated on E side of unit; Levels 11 and 12 on W side.	Large rocklike Layer A, rubble from retaining wall crossed the unit.
D	13	Floor below Wall 1.	Distinct dark layer below Wall 1.
E	13	Midden below floor.	Rocky section separates upper/lower midden; ash, charcoal, botanical.
F	13–15	Rocky layer and lower component of midden.	
G	15, 16	Former ground surface below midden.	Decreasing frequency of artifacts, little charcoal or burned material.
H	16, 17	Gravelly layer.	Cultural materials few to none.

Phases of occupation (Table 4m, n)

Phase	Includes	Description	Dated samples
I	1–6	Final occupation in this part of the site. Homogeneous, not very dense trash over disused platform.	Mixed plant fibers from <i>shicra</i> in Level 5 dated 2330 Cal (Beta-183325) BC (Table 4m).
II	7–11	Wall 1 built, formed side of platform 50 cm high. Only the platform in E half of unit was uncovered. Possible base for residential structures or for ceremonial activities on Sector A mound. Upper Phase II includes <i>shicra</i> , lower Phase II includes rock, earth, few <i>shicra</i> fragments, may be from collapse of structures on platform.	
III	12	Wall 1 and associated platform were built. Contents include material from wall itself (Fig. 9). Radiocarbon sample from this level was collected from the materials removed with the rock of the wall.	Charcoal dated 2840 Cal BC (Beta-199060) (Table 4n).
IV	13–15	Use surface at top, probably created by foot traffic. Surface runs under, thus precedes Wall 1. During remainder of phase, the area was used for cooking/heating. High-density carbonized remains. Midden leveled underlying surface. Layer of rock between midden layers may be construction debris or an effort to stabilize the midden surface.	
V	15	Original ground surface. Not level, little cultural material, grading to no cultural material in Level 7.	

TABLE 10. Caballote, Sector A, Test Unit 4—2004.

Excavation (Fig. 12)			
Level	Thickness	Description	Contents
Surface	14–21	Loose beige soil, fragments of angular rock, natural layer ending in changing texture and color.	Shell, charcoal, plant fiber, lithics.
1	13–16	Gray soil, fragments of angular rock, numerous clay mortar fragments.	Plant remains, shell, lithics, animal bone, feathers, plaster fragments. Twined textile fragment at interface of Levels 1 and 2.
2	15–17	Continuation of trash deposit in Level 1.	Shell, charcoal, lithics, plant remains, animal bone, feathers, coprolites, twined textile fragments, clay mortar.
3	14–16	Deposits in this level change from gray to grayish light brown.	Shell, charcoal, plant remains, feathers, pieces of clay mortar, plaster, rodent and human coprolites, animal bone.
4	1–5	Use surface prominent in N portion of pit, disappears at S end, consists of lightly packed fine light beige soil, little archaeological material, a marked contrast with gray trash deposit both above and below.	Material over the use surface included lithics, shell, fiber, coprolites, plaster, bone, feathers.
5	9–15	Trash deposit similar to that above Level 4, abundant cultural remains. A pocket of ash toward N corner.	Lithics, shell, coprolites, feathers, bone, plant remains, charcoal.
6	13–15	Trash deposit containing a substantial amount of plant fiber.	Charcoal, bone, feathers, coprolites, few lithics. Several well-preserved fish heads (anchovy), twig wrapped in string (bobbin), fragment of plastered mortar.
7	15 in the portion excavated, Wall 1	Removal of midden exposed two walls, the corner of a low platform. Perpendicular walls (Feature 1) built with large rocks, clay mortar, meet at the W edge of unit. Interior (E) side of wall and below, deposit continued with mixed rock, clay, plant remains. Platform was oriented NE to SW with exterior facing E, the interior of the platform W. S of this structure a stone alignment was identified that appears to be the other face of the platform, meeting in a 90° corner. Upper surface of platform without distinctive features or finish. Generally this low platform was covered by secondary trash as in Levels 5–7.	Construction fill included large quantity of medium and small angular rock with chunks of clay mortar mixed with plant fiber and archaeological trash in secondary context.
8	16 in the area excavated	Material that filled the interior of the platform was identified as Feature 1. Fill of medium and small angular rock in matrix of fine beige soil also contained significant plant fiber and mortar fragments.	Bone, charcoal, rodent excrement, shell, lithics, feathers, plant remains. Level also yielded concentration of large leaves, possibly <i>pacae</i> (<i>Inga feuillei</i>), N of the corner formed by the two walls.
9	15–30	Fine-grained sediment with fine loose sand visible in N. This level excavated only in the areas exterior to the platform (Wall 1) identified in Level 7.	Plant fiber, seeds, leaves, charcoal, shell, small animal bones, coprolites, clay mortar, lithics.
10	14, 15	Surface of compact fine-grained beige sand and soil on the N side of the area excavated. This included only the segment outside the walls, a small area.	Use surface with quantity of botanical remains, small pieces of charcoal, shell. Narrow lenses of ash associated with use of platform may have been deposited in a pit excavated at the corner of the platform. Toward S side of excavated area deposit was less compact and lighter color, consistent with less active use.
11	1.5–4	Deposit similar to previous level. Compact, fine-grained beige sandy sediment in W part of pit, extending to Level 7 platform. Area of packets of <i>pacae</i> leaves (<i>I. feuillei</i>) in Level 8. Matrix of light beige loose, fine sandy sediment.	Charcoal fragments, small shell fragments, animal bone, plant remains, few very small pieces of quartz. Charcoal and shell fragments pressed into the use surface at the upper margin of the level, defines the start of Level 11.
12	1–3	Use surface below Level 11. Matrix of material similar to Level 11, with more ash. Field observations indicate this was the first use surface in this locality, used during construction of Level 7 platform and possibly before it.	Lithics, animal bone, charcoal, shell, some fragments of twined textile.
Excavation of platform fill—Wall 1	14	Excavated in 15-cm levels once the base of platform was identified. Matrix within platform was compact red-brown clayey soil.	Clay mortar fragments, plant fiber, medium-sized rocks dispersed irregularly within matrix. Shell, animal bones, coprolites, lithics, botanical remains to 158 cm below datum.
13	12–18	Dark, fine-grained ashy soil, somewhat uncompacted texture across unit under Level 7 platform indicates prior use. Deposit noticeably more compact at base.	Burned trash, charcoal fragments, shell fragments, lithics, plant fiber, other botanical remains, bone, feathers, coprolites, a few chunks of clay mortar.
14	10–18	Compact surface of ash recognized in S wall of unit. Matrix similar to previous, fine, dark gray ash. Use surface preserved in S half of unit. Base of level marked by narrow lens of loose gravel running the length of excavated area.	Organic inclusions such as plant fiber, fragments of cane and wood, textile fragments; lithics including a large denticulate tool.

TABLE 10. *Continued.*

Excavation (Fig. 12)			
Level	Thickness	Description	Contents
15	12–16	Deposit of ash with compact surface. Dark gray to brown matrix, somewhat compact, fine grained. Varied in depth, appeared to be a badly deteriorated use surface. Medium-sized gravel lay under the ashy deposit.	Abundant organic material including cane and plant fiber concentrated in center of the unit (Feature 3). Shell, coprolites, feathers, bone, charcoal, lithics, textile fragments.
16	14, 15	Medium-sized gravel under Level 15.	No artifacts recovered. Plant material recovered from pockets of Level 15 ash intruding into Level 16, culturally sterile subsoil. One low spot held a circular bundle consisting of packets of twisted willow stems (<i>Salix humboldtiana</i>) and achira (<i>Canna edulis</i>) (Figure 14). These packets mark the start of occupation in this area, an offering, though no other materials were included with them.
17		Culturally sterile gravel that extended the length of the unit.	No artifacts recovered. Two fragments of plant fiber at top of level were dated (Table 11d, e).
Stratigraphy			
Layer	Levels	Characteristics of layer	Contents of layer
A	0	Thin surface layer of fine-textured, loose beige soil with aeolian sand and natural inclusions, very small fragments of angular rock.	Mostly small fragments of shell and charcoal.
B	0	Thick deposit of cultural material in fine-textured, sandy, dark beige soil from somewhat compact to uncompacted. Cultural material distributed unevenly. Layer B appears to be the upper portion of a deep archaeological trash midden deposited toward end of occupation.	Plant fiber and seeds, fragments of shell, lithics, animal bone, feathers, chunks of clay mortar, fragments of clay plaster.
C	1–8	Fine-grained, somewhat compact light beige soil. Cultural materials were mixed together, no discernible pattern. Upper half of the layer separated from lower portion toward N part of unit by narrow layer of fine-textured, compact light beige clayey sediment (3–4 cm) that contained very little cultural material. Surface of lens was level, homogeneous, likely a use surface, excavated as part of Level 4. The use surface was subsequently covered with more trash. Fine-textured dark beige to cinnamon colored uncompacted soil. Excavated as part of Levels 5–12 owing to its thickness. Use surface in N half of the unit; large number of fish heads, possibly anchovy, fragments of tree branch wrapped in string very near a layer of ash. At the beginning of Level 8, a rectangular platform was identified, with external faces of angular rock and fill of mortar fragments. Wall plaster, archaeological trash in fine beige clayey sediment was identified.	Primarily plant fiber, seeds and stems, along with fragments of shell, small pieces of charcoal, feathers, rodent excrement, coprolites, animal bone, clay mortar, plaster from walls.
D	8–12	Outside the platform, the W and N portions of the unit revealed 3 use surfaces at the upper margins of Levels 10–12. Each was a thin layer of fine light beige clayey sediment, somewhat compacted, little cultural material. Use surfaces in Levels 10 and 12 were better preserved than Level 11 and included concentrations of ash. Proximity of the use surface in Level 12 to the platform suggests it functioned when the platform was in use. Layer D formed over time for disposal of debris and trash on the use surface that was the base for a stone platform. Platform activity is indicated by use surfaces in Levels 10–12. Later, platform was covered by trash. Material was similar but not identical to that accumulated between the use surfaces. Late Archaic age of deposits indicated by <i>shicra</i> bags in S wall trash layer.	Plant fiber, stems, leaves, seeds, charcoal fragments, animal bones (mostly small species), feathers, coprolites (mostly rodent), lithics, fragments of clay mortar, wall plaster.
E	11, 13	Dark gray, fine-grained, uncompacted ash. Surface was lightly compacted, though not across entire unit. Large quantity of midden. Area was in use before platform was constructed.	Shell, lithics, plant fibers, other botanical remains, bone, feathers, coprolites, fragments of clay mortar distributed irregularly across Level 13.
F	14–15	Fine-textured, dark gray, somewhat compact, ashy soil with botanical remains. Surface of Layer F excavated as Level 14 not as thick as other levels (7–8 cm), may have been a use surface, best preserved at S end. Lower portion of layer marked by narrow lens of medium-textured, loose gray gravel separating it from ashy layer below. Layer F represents occupation before the Level 12 platform.	Plant fiber, stems, cane, wood, lithics, textile fragments primarily from the N side.
G	16, 17	Thick deposit of dark gray, fine-textured somewhat compact ashy sediment. Surface of layer was compact, possible use surface, best preserved at the S end of unit. Covered with lens of medium-textured loose gravel and botanical material, stems, leaves, plant fiber. This layer filled small pits excavated into underlying coarse gray gravel on which the site was built. The pits are small, maximum of 15-cm diameter. Fill mostly plant fiber. One larger pit in SW corner of unit yielded large number of willow (<i>S. humboldtiana</i>) and achira (<i>C. edulis</i>) twigs, leaves wound and tied into small packets. As noted above, this feature was excavated in Level 16. Fragments of plant fiber in Level 17 also part of Layer G.	Cane, plant fiber, shell, coprolites, feathers, animal bone, charcoal, lithics, twined textile fragments.
H	17	Uncompacted coarse gray gravel below the pits dug into the gravel layer.	No cultural materials.

TABLE 10. *Continued.*

Phases of occupation (Table 11a–g)			
Phase	Layers	Description	Dated samples
I	A–C	Aeolian and recent deposits over midden.	
II	C	Clay floor appears to be last occupation of this part of the site in the middle of Layer C. Floor created on deposits of rock, gravel, cultural materials. Alternatively, this layer may be a flood deposit as cultural materials above are similar to those below.	
III	D	Wall 1 and associated low platform, floors, and remodeling of floors that took place while Wall 1 platform was in use.	Dates of 2390 (ISGS-5521) and 2730 Cal BC (Beta-199062) (Table 11a, b) obtained from plant fibers.
IV	E, F	Black, ashy midden deposits were among the earliest deposits in this area, clearly midden and hearth contents.	A date of 2220 Cal BC (GX-31583) (Table 11c) from the base of the ashy midden deposit; dates of 2320 (ISGS-5721) and 2700 Cal BC (Beta-199777) (Table 11f, g) obtained from the feature/midden-filled irregularity at layer's base.
V	G, H	Includes the base of Test Unit 4, gravelly deposits.	A date of 1890 (GX-31581) (Table 11d) obtained from the material intruding into Layer H. A date of 2300 Cal BC (GX-31580) (Table 11e) obtained from a sample from the same level that was pit fill or midden concentrated in the NW corner.

TABLE 11. Radiocarbon dates from Caballote.

Sample	Provenience	Level/Layer	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2—1σ range	95.4—2σ range
a	Sector A, pit profile	8	fiber from wall plaster	ISGS-5521	2390	3920	70	-12.8	2546-2544 (1.1); 2488-2294 (98.9)	2579-2200 (99.8); 2158-2155 (0.2)
b	Sector A, TU 4	10	mixed plant fibers	Beta-199062	2730	4160	70	-25.7	2873-2833 (18.7); 2818-2662 (75.0); 2649-2635 (6.3)	2895-2569 (98.4); 2516-2500 (1.6)
c	Sector A, TU 4	15	mixed plant fibers	GX-31583	2220	3770	70	-18.4	2294-2124 (81.6); 2092-2043 (18.4)	2458-2417 (4.0); 2410-2022 (95.3); 1992-1983 (0.7)
d	Sector A, TU 4	17	mixed plant fibers	GX-31581	1890	3550	60	-27.6	1964-1867 (60.7); 1848-1774 (39.3)	2112-2102 (0.6); 2036-1738 (98.7); 1708-1697 (0.7)
e	Sector A, TU 4	17 final	mixed plant fibers	GX-31580	2300	3840	70	-26.7	2456-2419 (15.5); 2407-2376 (13.0); 2351-2203 (71.4)	2476-2129 (97.1); 2088-2047 (2.9)
f	Sector A, TU 4	pit fill	mixed plant fibers	ISGS-5721	2320	3870	70	-12.6	2464-2283 (91.9); 2248-2232 (6.9); 2217-2215 (1.2)	2562-2534 (2.1); 2493-2139 (97.9)
g	Sector A, TU 4	pit fill	charcoal	Beta-199777	2700	4110	70	-11.3	2862-2807 (24.4); 2758-2718 (16.6); 2706-2577 (59.0)	2880-2558 (92.0); 2554-2550 (0.4); 2537-2491 (7.5)
h	Sector B, Profile 1	Layer E	fiber bag	Beta-183312	1940	3590	70	-26.2	2110-2104 (2.2); 2036-1877 (88.5); 1841-1824 (5.4); 1795-1783 (3.9)	2135-1753 (100.0)
i	Sector B, Profile 1	Layer G	fiber bag	GX-30511	2120	3720	70	-11.0	2270-2259 (3.3); 2206-2023 (94.2); 1991-1984 (2.5)	2340-2313 (1.4); 2310-1920 (98.6)
j	Sector B, Profile 1	Layer G	mixed plant fibers	ISGS-5523	3070	4450	290	-13.5	3624-3602 (2.0); 3524-2861 (91.6); 2808-2756 (5.0); 2719-2705 (1.3)	3893-3883 (0.1); 3798-2338 (99.7); 2322-2309 (0.2)
k	Sector B, TU 1	4	mixed plant fibers	ISGS-5537	2280	3810	70	-15.8	2427-2426 (0.3); 2400-2382 (6.3); 2347-2140 (93.4)	2467-2119 (92.7); 2096-2040 (7.3)
l	Sector B, TU 1	5	mixed plant fibers	GX-30512	2070	3680	70	-14.7	2192-2179 (5.0); 2142-1962 (95.0)	2284-2248 (3.3); 2233-1887 (96.7)
m	Sector B, TU 1	6	fiber bag	Beta-183313	2350	3890	80	-26.7	2475-2274 (85.2); 2255-2208 (14.8)	2618-2608 (0.4); 2595-2594 (0.2); 2584-2128 (97.6); 2088-2046 (1.8)
n	Sector B, TU 1	7	charcoal	GX-31588	2450	3960	60	-27.2	2570-2514 (33.8); 2502-2433 (41.4); 2423-2402 (9.6); 2380-2348 (15.2)	2828-2824 (0.2); 2625-2284 (99.1); 2248-2234 (0.7)
o	Sector B, TU 1	8	mixed plant fibers	GX-31590	2620	4030	70	-11.5	2834-2817 (5.8); 2663-2647 (5.5); 2636-2468 (88.7)	2868-2803 (10.2); 2777-2429 (85.6); 2425-2400 (1.8); 2382-2347 (2.5)
p	Sector B, TU 1	9	fiber bag	ISGS-5710	2340	3870	70	-10.8	2464-2283 (91.9); 2248-2232 (6.9); 2217-2215 (1.2)	2562-2534 (2.1); 2493-2139 (97.9)
q	Sector B, TU 1	9	fiber bag	ISGS-5712	2320	3860	70	-12.8	2459-2280 (87.7); 2250-2230 (8.7); 2219-2212 (3.5)	2562-2535 (1.5); 2492-2135 (98.5); 2067-2066 (0.05)
r	Sector B, TU 1	9	mixed plant fibers	Beta-199057	2500	3980	80	-10.2	2619-2607 (3.1); 2599-2593 (1.4); 2585-2392 (83.1); 2385-2346 (12.4)	2858-2810 (4.1); 2750-2723 (1.6); 2700-2277 (92.2); 2252-2228 (1.4); 2222-2210 (0.6)
s	Sector C, Profile 2	N face	fiber bag	Beta-183314	2400	3920	50	-9.6	2474-2339 (95.5); 2321-2319 (1.5); 2315-2310 (3.0)	2568-2519 (7.5); 2499-2281 (90.1); 2249-2231 (1.9); 2218-2212 (0.5)
t	Sector C, Profile 2	N face	mixed plant fibers	Beta-199059	2320	3860	70	-11.9	2459-2280 (87.7); 2250-2230 (8.7); 2219-2212 (3.5)	2562-2535 (1.5); 2492-2135 (98.5); 2067-2066 (0.05)
u	Sector C, Profile 2	E face	<i>tillandsia</i>	GX-31589	2160	3750	70	-12.7	2275-2254 (10.7); 2227-2224 (1.3); 2209-2124 (61.1); 2091-2043 (27.0)	2335-2324 (0.7); 2307-2302 (0.2); 2301-2020 (98.3); 1994-1982 (0.8)
v	Sector C, TU 2	8	fiber bag	ISGS-5516	2490	3980	70	-14.2	2616-2612 (1.4); 2580-2431 (80.1); 2424-2402 (7.4); 2381-2348 (11.1)	2850-2813 (2.9); 2743-2728 (0.6); 2695-2686 (0.4); 2680-2284 (95.5); 2248-2234 (0.6)
w	Sector C, TU 2	9	charcoal	ISGS-5719	2320	3860	70	-24.7	2459-2280 (87.7); 2250-2230 (8.7); 2219-2212 (3.5)	2562-2535 (1.5); 2492-2135 (98.5); 2067-2066 (0.05)
x	Sector C, TU 2	11	<i>junco</i>	GX-31584	2120	3720	70	-12.2	2270-2259 (3.3); 2206-2023 (94.2); 1991-1984 (2.6)	2340-2313 (1.4); 2310-1920 (98.6)
y	Sector C, TU 2	11	charcoal	GX-31587	2640	4040	60	-25.3	2832-2820 (5.3); 2657-2654 (1.2); 2632-2474 (93.6)	2867-2803 (10.8); 2777-2459 (89.2)
z	Sector C, TU 2	12	mixed plant fibers	Beta-199776	2570	4020	90	-11.7	2833-2818 (4.9); 2662-2649 (3.7); 2635-2465 (91.4)	2864-2805 (8.4); 2760-2341 (91.6)

TABLE 11. Continued.

Sample	Provenience	Level/Layer	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2—1σ range	95.4—2σ range
aa	Sector C, TU 2	12	charcoal	Beta-199058	2960	4300	60	-24.1	3011-2977 (23.6); 2974-2948 (14.5); 2944-2880 (62.0)	3096-2856 (90.5); 2811-2747 (7.5); 2724-2698 (2.0)
bb	Sector C, TU 2	13	fiber bag	Beta-183315	2350	3890	70	-9.3	2471-2286 (97.4); 2247-2243 (1.5); 2238-2235 (1.1)	2568-2518 (5.3); 2499-2195 (92.5); 2172-2145 (2.2)
cc	Sector C, TU 2	15	mixed plant fibers	ISGS-5511	2660	4050	80	-13.3	2847-2844 (1.2); 2840-2813 (10.0); 2737-2734 (0.9); 2692-2689 (0.9); 2678-2473 (87.1)	2878-2451 (97.1); 2445-2438 (0.4); 2420-2405 (0.9); 2378-2350 (1.6)
dd	Sector C, TU 2	16	charcoal	Beta-199775	3620	4840	70	-23.9	3702-3627 (55.6); 3591-3527 (44.4)	3775-3501 (94.4); 3428-3380 (5.6)
ee	Sector D, Profile 3		fiber bag	GX-30513	1620	3330	90	-14.1	1735-1714 (8.1); 1694-1508 (91.9)	1877-1841 (3.4); 1825-1795 (2.2); 1782-1430 (94.4)
ff	Sector D, Profile 3		fiber bag	Beta-184859	2150	3740	50	-25.6	2263-2261 (1.4); 2205-2117 (61.9); 2098-2039 (36.8)	2294-2015 (98.5); 1997-1980 (1.5)
gg	Sector D, Profile 3		mixed plant fibers	ISGS-5532	2390	3920	70	-10.7	2546-2544 (1.0); 2488-2294 (99.0)	2579-2200 (99.8); 2158-2155 (0.2)
hh	Sector E, trench		charcoal	GX-30514	3120	4440	40	-28.3	3322-3272 (20.6); 3269-3235 (17.7); 3171-3162 (3.6); 3116-3017 (58.1)	3333-3213 (34.1); 3189-3154 (6.9); 3134-2927 (59.0)
ii	Sector E, trench		mixed plant fibers	ISGS-A0477	2520	4000	70	-13.1	2831-2821 (2.6); 2630-2457 (91.2); 2418-2407 (2.7); 2375-2367 (1.7); 2362-2353 (1.9)	2857-2811 (5.2); 2749-2723 (1.8); 2699-2296 (93.0)
jj	Sector F, TU 1	4 (Feature 1)	mixed plant fibers	ISGS-5724	940	2870	80	-13.3	1190-1178 (4.0); 1159-1144 (5.4); 1131-926 (90.6)	1290-1280 (0.7); 1270-842 (99.3)
kk	Sector F, TU 1	7 (Feature 2)	mixed plant fibers	ISGS-5729	680	2580	70	-23.3	817-746 (47.1); 688-664 (13.2); 646-552 (39.7)	896-507 (98.3); 459-453 (0.3); 439-419 (1.4)

Calibrated date intervals from Caballete

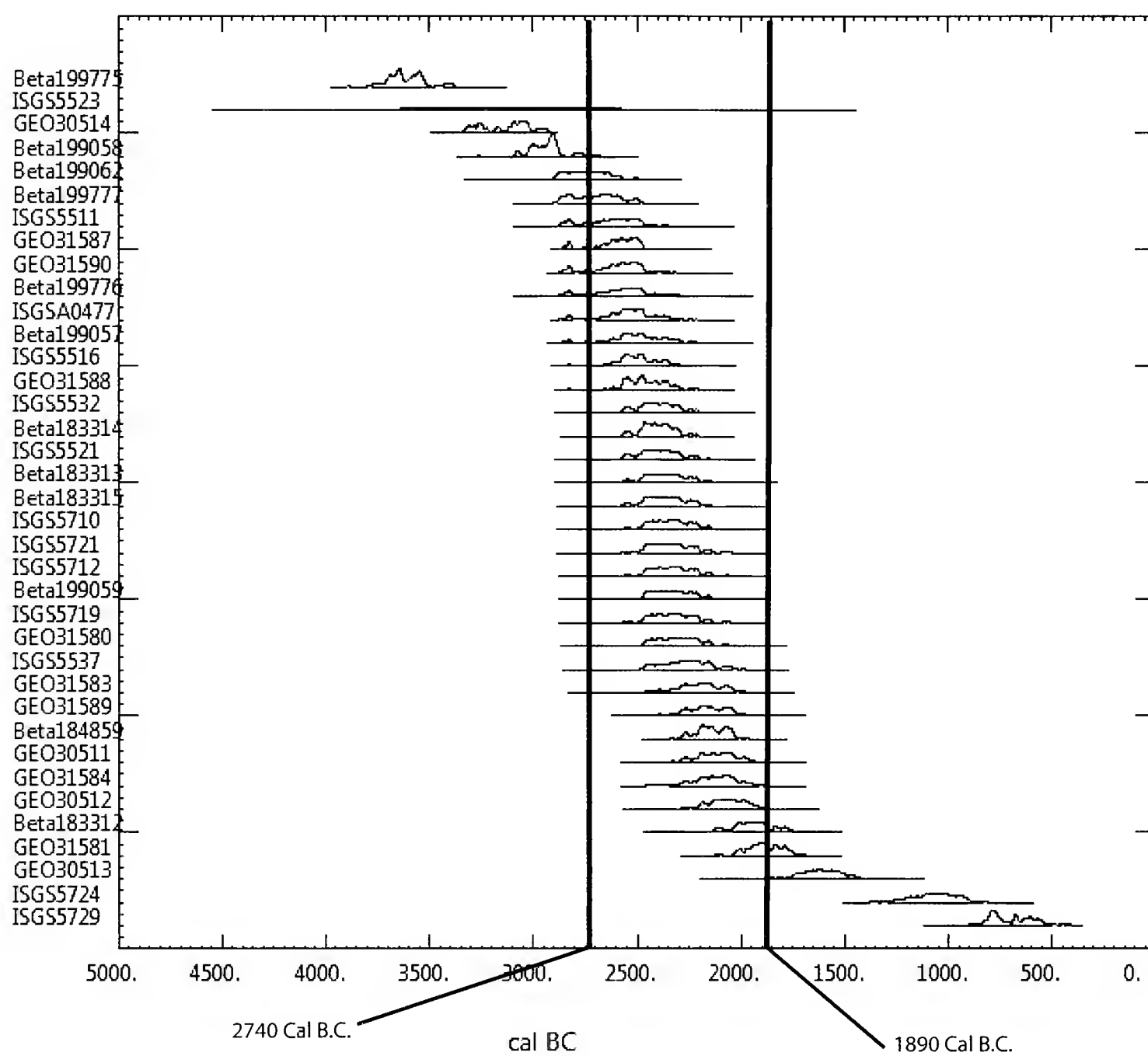


TABLE 12. Caballote, Sector B, Profile 1—2003.

Stratigraphy (Fig. 15)			
Layer	Description of stratigraphy		Contents of layer
A	<i>Shicra</i> , medium-sized and small rocks.		Radiocarbon samples were collected during profile clearing. No other.
B	Clay floors, three episodes of remodeling. Floor made of clay mixed with plant fiber.		Materials were collected.
C	Construction fill above a wall, including some <i>shicra</i> .		
D	Floor on top of wall that formed the face of the structure.		
E	Plaster-coated wall at base of pit.		
F	Plastered floor on S side of W wall and along S profile. Wall visible in S profile of unit rests on this plastered floor.		
G	Construction fill, <i>shicra</i> bags filled space behind plastered wall.		
Phases of occupation (Table 11h–j)			
Phase	Layers	Description	Dated samples
I	A, B	Debris, soil from collapse of last structures to be built; postdates abandonment of mound.	
II	B	Final occupation of mound; intensive use shown by multiple remodelings of the floor.	
III	C	Phase during which fill was used to cover previous floors to raise or level the area.	A date of 1940 Cal BC (Beta-183312) (Table 11h) obtained from <i>shicra</i> fragment recovered below floors at top of Layer C.
IV	D	Two floors constructed on top of earlier wall, associated construction fill.	
V	E, G	E is the wall of the buried room. G is the construction fill behind that wall, consisting of <i>shicra</i> bags.	A date of 2120 Cal BC (GX-30511) (Table 11i) obtained from <i>shicra</i> . A date of 3070 Cal BC (ISGS-5523) (Table 11j) obtained from plant fibers mixed into clay plaster from wall in Layer E.
VI	F	Floor on which plastered wall was built.	

TABLE 13. Caballete, Sector B, Test Unit 1—2003.

Excavation (Fig. 16)			
Level	Thickness	Description	Contents
0	7–9	Aeolian sediment and soil, recently disturbed.	
1	0–15	Sandy soil. ash, charcoal, small area of floor in NE corner.	Burned shell, one bone bead.
2	0–12	Sandy soil with ash, charcoal.	Burned shell, heat-fractured rock, lithics.
3	0–10	Natural level including the rest of the deposit of dark ashy soil.	Charcoal, burned shell, heat-fractured rock, botanical remains.
4	12–18	Fragment of clay floor containing a large quantity of plant fiber.	Construction debris, including clay fragments, plant fiber, lithic remains, shell, charcoal.
5	12–17	Fill, large quantity of <i>shicra</i> .	<i>Shicra</i> fragments, individual fibers, braided plant stems, reed fragments. Clay mortar, angular rock in the SW portion.
6	12–18	Light brown, powdery soil. gravel, rock.	Lithics, shell fragments, charcoal, bone, <i>shicra</i> , plant remains, including <i>pacae</i> , peanut, squash, and cotton seeds, stems and bolls, textile fragments.
7	13–18	Dry, powdery soil, gravel, rock. Plaster wall or floor, fragments of clay with surface of gray paint or fine plaster.	<i>Shicra</i> , charcoal, a few strands of cotton, <i>pacae</i> , squash.
8	8–15	Dry, powdery light brown soil.	Plant fiber, preserved <i>shicra</i> bags, one beside a large rock at the base of unit.
9	16–26	Medium and small angular rock in dry, powdery light brown soil. A layer of <i>shicra</i> bags was part of construction fill above loose medium-sized rock. Below was an irregular and rough use surface.	Very little cultural material.
10	4–16	Orange-brown, culturally sterile soil. First use of this area occurred when wet clay formed the use surface, possibly an effort to level loose, powdery soil.	No cultural material.
Stratigraphy			
Layer	Levels	Characteristics of layer	Contents of layer
A	1–5	Ashy layer across surface of unit associated with filling a large pit feature.	Perhaps a <i>pachamanca</i> , or pit cooking feature.
B	2	Patch of yellow-brown soil preserved between two areas of disturbance, the intrusive pit in A and intrusive pit D.	Heat-fractured rock with burned and unburned plant fiber, botanical remains, shell, and charcoal intruding into Layers B and E.
C	1	Fragment of hearth or burned surface.	Fire-reddened soil.
D	2–4	Pit features.	Uniform fill of gravelly soil.
E	3–7	Midden fill predating features in A and D.	Abundant plant remains.
F	6–8	<i>Shicra</i> deposit.	
G	7, 8	<i>Shicra</i> used to construct a low platform.	
H	9, 10	Use surface of clay and plant fiber, not uniform; 20 cm thick on N side, thinning toward S end, an effort to level the area.	
J	2–8	Intrusive pit feature excavated and refilled with gray gravelly soil.	
Phases of occupation (Table 11k–r)			
Phase	Layers	Description	Dated samples
I	C, D	Last use of this area includes Layers C and D, part of small intrusive hole filled with gravelly soil. Layer C may be fragment of floor identified in Level 1. Thin layer of red sand may be remains of hearth/burned area. Layer D is intrusion of dark gray compact soil, hard and gravelly, coarser than other material in unit. Small to medium-sized rocks, gray color from ashy material, no plant remains. Layer D is within an earlier intrusive deposit, Layer J. No indication of specific function. Layer D could be remains of feature below Layer C floor. Phase I may be late occupation barely sampled by this test unit.	
II	A	Ashy spot in NW corner could have been an activity area for cooking with hot stones. Heat-fractured rock, burned and unburned plant fiber, botanical remains, shell, charcoal, intrusive into Layers B and E.	
III	B	Soft yellow-brown soil, a few rocks, very little plant fiber, may have been used to level, smooth, or clean the space, possibly prior to food preparation. Not compact enough for a floor, little cultural material. Layer B was put in place after Layer J intrusion was filled but before pit was excavated that became Layer A.	
IV	J	Intrusion of tan soil mixed with small and medium-sized rocks. Removal of soil disturbed <i>shicra</i> bags, moved aside in a pile forming Layer F.	

TABLE 13. *Continued.*

Phases of occupation (Table 11k-r)			
Phase	Layers	Description	Dated samples
V	E	Extensive midden with high concentration of plant remains, divided into upper/lower segments by layer of small rocks (~5 cm), a rough floor or use surface. Upper portion of Layer E was more compact, with a few small rocks. Lower portion includes more medium-sized rocks. Layer E is bounded on N and S by intrusive deposits; only a short stretch of profile shows layers of deposition.	Four samples yielded dates of 2450–2070 Cal BC (ISGS-5537; GX-30512; Beta-183313; GX-31588) (Table 11k-n).
VI	G, H	Low platform built over Layer H. During this phase a platform was built forming surface for working reeds. Large rocks formed side of platform.	A sample dated to 2620 Cal BC (GX-31590) (Table 11o).
	H	Layer H was the first use surface in this locality; clay was used to level the area.	Three samples dated 2500–2320 Cal BC (ISGS-5710; ISGS-5712; Beta-199057) (Table 11p-r).
VII	I	Original ground surface of gravel and bedrock fragments.	

TABLE 14. Caballote, Sector B, Test Unit 2—2004.

Excavation (Fig. 17)			
Level	Thickness	Description	Contents
0	0–15	Loose sediment over a thin layer of ash.	Shell, lithics, fish bone, charcoal fragments, plant fiber.
1	12–16	Compact light gray soil with patches of caliche. Base of level had a lens of compact brown soil with some rocks. SW corner included patch of light brown soil lacking cultural material.	Fragments of shell, charcoal, plant fiber and lithics.
2	15	Gray gravel in the center of the unit appeared to be part of a compact beige surface.	A compact surface associated with charcoal fragments, plant fiber and hair along upper edge. The rest of the level was without cultural material; the patch of cultural materials may be a flood deposit.
3	92	Upper portion included remains of light gray surface. Gravel layers were natural rather than cultural deposits.	A few plant fibers, charcoal fragments.

Stratigraphy			
Layer	Levels	Characteristics of layer	Contents of layer
A	0, 1	Shallow surface layer formed by fine-grained, loose-textured sediment mixed with fine aeolian sand.	Little cultural material, principally small shell fragments. Small natural inclusions of large-grain angular rock.
B	1	Fine-grained, dark brown, semicompact sediment extending across the unit. Natural inclusions of angular rock distributed irregularly suggest layer was accumulated wind-blown material mixed with existing surface sediment following site abandonment, compacted by humidity. Upper part of layer may be a poorly consolidated use surface.	Cultural materials include shell fragments, charcoal, plant fiber, lithics, fish bone, in concentrations associated with thin layers of ash.
C	1	Fine-textured, loose, light beige sediment across entire unit. In places sediment mixed with medium grayish gravel.	Natural and cultural materials similar to those in Layer B.
D	2	Fine gray partly compacted sediment, not as thin as previous layers. Layer extended across entire unit, slight tilt from N/S clearly visible. Inclusions of angular rock, as in Layers 2 and 3.	Cultural materials similar to Layers B and C include charcoal, plant fiber, hair concentrated in upper part of layer; greater density than Layers B and C. Density, position suggest this was a use surface highly deteriorated at time of excavation.
E	2, 3	Medium-sized, slightly pinkish somewhat loose gray gravel constituted the upper portion of thick deposit of coarse gravel present in all sectors of the site underlying cultural deposits. Gravel becomes coarser with depth, losing the pinkish tint.	Culturally sterile.
F	2	Portion of use surface on E side of unit.	A few shell and charcoal fragments.

Phases of occupation			
Phase	Layers	Description	Dated samples
I	A–D	Layers of different textures, compositions, include cultural material; may represent occupation of this part of the site.	
II	E, F	Includes base of Level 2, upper portion of Level 3. On E side, possible use surface was identified. Below was what appeared to be a shallow pit. Layers of fine sand and clay cutting across the gravel deposits appear to be natural. Evidence of activity confined to the small use surface.	

TABLE 15. Caballete, Sector C, Profile 2—2003.

Stratigraphy (Fig. 18)			
Layer		Description of stratigraphy	Contents of layer
A		Postoccupation disturbance.	Loose soil, rock fill, and debris. Large rock and rubble.
B		Section of clay floor.	
C		Layer of fill below floor, showing leveling before the clay floor was laid.	
D		Collapsed construction. Wall 1 visible at extreme N of profile.	
E		Clay floor at base of Layer D floor appears constructed from Wall 2 toward center of mound. Wall 2 appears to have been a retaining wall within lower levels of mound.	
Phases of occupation (Table 11s–u)			
Phase	Layers	Description	Dated samples
I	A, B	Debris from looting, erosion, collapse, with dates long after final occupation. At base of Phase I is floor that probably indicates use of the mound area after abandonment.	A date of 2400 Cal BC obtained from a fragment of <i>shicra</i> bag (Beta-183314) (Table 11s).
II	B	Construction fill and rubble from collapse of structures. Wall 1 was identified at one end of the profile, with large rocks, fragments of <i>shicra</i> dispersed throughout.	A date of 2320 Cal BC obtained from the N face (Beta-199059) (Table 11t).
III	C	Floor dating to occupation, with retaining wall at N end; floor segment may have been part of original construction of floor and associated elements. Excavation ended at base of damaged area, though cultural materials continued into lower levels. Base of cleared area was well above base of mound. Cleared section shown is only a portion of the Sector C mound deposits.	A date of 2160 Cal BC (GX-31589) (Table 11u) obtained from Phase III materials.

TABLE 16. Caballote, Sector C, Test Unit 2—2003.

Excavation (Fig. 20a, b)			
Level	Thickness	Description	Contents
1	10–16	Dry, sandy, light-brown soil, rock; a few compacted patches.	Shell fragments.
2	10–15	Dry, sandy, light-brown soil, patches of clay, ash.	<i>Shicra</i> , clay mortar fragments, a few large rocks, probably remains of collapsed wall.
3	14–20	Compact sandy soil around large rocks first observed in Level 2.	Cotton, lithics, charcoal, plant remains, shell, feather, apparently midden.
4	13–15	Light brown soil with some clay lumps, though soil was not clayey.	Textile fragments, bone, shell, lithics, charcoal, plant remains.
5	15–17	Few rocks in compact soil, fragments of clay mortar mixed with plant fiber. Cross section of wall visible in W wall but not in E wall. Ash, burned soil, burned rock.	More artifacts including lithics, shell, animal bone, human hair, charcoal, botanical remains. Large quantity of plant fiber in every level.
6	15–22	Botanical remains with clay or clay mortar. Use surface at base of level, Floor 1, neither level nor plastered. Plant material on top of the surface. Small rocks in use surface, other materials, suggest surface formed by use or traffic across area, not a prepared surface.	Many botanical remains with clay and clay mortar fragments.
7	0–8	Dry sandy soil with ash, clay mortar fragments. Numerous fragments of charcoal just underneath use surface.	Lithics, shell, botanical remains, charcoal.
8	15–18	Loose soil with numerous reed fragments, angular rock. A mix of clay and plant fibers was used to make a surface, though the floor, Floor 2, was fragmentary.	Shell, botanical remains, fragments of clay floor.
9	2–8	Compact soil. Little charcoal though a small area of ash. A use surface with evidence of several renovations, Floor 3, made it difficult to distinguish among layers of use.	Many shell fragments and botanical remains.
10	9–26	Compact soil with several use surfaces, making it difficult to follow out the individual components of this level.	Trash deposit, burned rock, ash, charcoal, dark soil, with shell, plant remains, relatively less shell. Quantity of botanical material, lithics, burned rock.
11	2–17	Sandy soil with rock, burned soil, fragments of clay floor. S end of unit contained concentration of rock and ash.	Botanical remains, fish bone, a few shell fragments.
12	12–15	Construction debris such as clay floor and wall fragments, with plastered surfaces visible. Wall or bench finished with plaster identified on W side of level's base.	Many botanical remains, little charcoal and shell. Some lithics, patches of ash, large rocks in S half.
13	11–15	Loose soil with <i>shicra</i> bags on S side, a plastered wall on W side; large rocks with fragments of construction material on E side. Wall along the W side made it difficult to remove soil, small size of test unit (1 × 2 m) made excavating awkward.	Botanical remains, lithics, shell.
14	2–15	Loose fill along the side of Wall 2 including fragments of <i>shicra</i> .	Shell, lithics, botanical remains including leaves, stems.
15	5–10	Continued <i>shicra</i> fill from previous levels. <i>Shicra</i> bags from Levels 13–15 appear to have been lined with leaves. Level ended at a plastered floor.	Shell, botanical remains including wood and leaves.
16	9–13	Clay and fiber floor or bench attached to Wall 2. Floor was broken in center of unit, as was the bench; beneath were loose earth and gravel, no cultural material. Charcoal and burned soil in center of unit.	Charcoal, plant remains.
17	10–15	Only a narrow area could be excavated without removing bench and plastered floor. Excavation reached culturally sterile sandy soil in lower portion of level. Area excavated, sample, both small.	Small quantity of shell, botanical remains, charcoal in center where floor and bench were broken.
Stratigraphy			
Layer	Levels	Characteristics of layer	Contents of layer
A	1	Aeolian deposit of sand.	Narrow layer, little cultural material.
B	1	Fill deposited or accumulated during final period of site use.	
C	1, 2	Compact clay layers, use surfaces associated with Wall 1.	Short segments of clay surface.
D	1–5	Feature associated with former ground surface in Level 1.	In profile, Pit D is a distinctly later feature than adjacent Floor C and Wall 1.
E	2–5	Mixed fill postdating occupation of Floor 1.	Cotton, feathers, other materials.
F	2–6	Mixed fill postdating occupation of Floor 1.	Thick layer of plant material.
G	7, 8	Ashy midden between Floors 1 and 2.	Charcoal, ash, floor fragments.
H	10, 11	Below Floor 3, cultural fill over midden.	
I	10–12	Dark gray, ashy midden.	Ash and burned rock with less shell than other levels.
J	13, 14	Wall 2. Wall or bench with smooth plaster surface.	Top of feature thought to be wall but upper edge was plastered. Likely bench considering condition and depth.
K	13–17	<i>Shicra</i> fill inside broken section of Wall 2.	Floor built over original ground surface, making it the lowest constructed element found.
L	16	Floor or bench attached to Wall 2.	Base of feature identified in this layer.
M	17	Sandy fill beside and below Wall 2 and associated floor or bench. Excavation ended when the unit became too narrow to work.	Sandy soil may be base of this construction, reached beside bench. Area was narrow; difficult to see whether construction ended here.

TABLE 16. *Continued.*

Phases of occupation (Table 11v–dd)			
Phase	Layers	Description	Dated samples
I	A, B	Excavation of pit feature at end or after final occupation. Contents of pit similar to materials in upper levels.	
II	Wall 1, C, D	Included Wall 1 and subsequent occupation as shown by surfaces built up against base of wall.	
III	E, F	Period between use of Floor A and construction of Wall 1. Deposition followed abandonment of Floor A, creating inclined surface; later deposits largely leveled the area.	
IV	G, H	Period of intensive use, construction of floor or compact use surface of clay mixed with plant fiber was remodeled/replastered at least three times. A thicker deposit, intentional fill or fill representing a period of disuse, was capped by Floor A.	A date of 2490 Cal BC (ISGS-5516) (Table 11v) from a fragment of <i>shicra</i> bag in Level 8. A sample of charcoal from Level 9 (Floor 3) dated 2320 Cal BC (ISGS-5719) (Table 11w). A sample of reed, <i>junco</i> , from Level 11 dated 2120 Cal BC (GX-31584); a sample of charcoal dated 2640 Cal BC (GX-31587) (Table 11x, y).
V	I	Layer of ash with plant remains in gravel, contrasting with material below. May represent distinct change in occupation. Instead of a structure or floors, this phase was trash disposal, predominantly charred.	A sample of mixed plant fiber from this level dated to 2570 Cal BC (Beta-199776); a sample of charcoal dated to 2960 Cal BC (Beta-199058) (Table 11z, aa).
VI	J–M	Earliest phase of occupation identified in this area. Includes Wall 2, wall or bench more than 20 cm wide across the top and completely covered by fine, smooth plaster. Top of feature was 2 m below present ground surface. Depth suggests this is not top of a wall but a bench. Excavations in surrounding area rarely reached 2 m. In this narrow test pit (1 × 2 m) it was impossible to continue excavating.	A sample of <i>shicra</i> from Level 13 dated to 2350 Cal BC (Beta-183315) (Table 11bb). Plant fibers from Level 14 dated 2660 Cal BC (ISGS-5511) (Table 11cc). A charcoal sample from Level 16 dated to 3620 Cal BC (Beta-199775) (Table 11dd).

TABLE 17. Caballote, Sector D, Profile 3—2003.

Stratigraphy (Fig. 21)		
Layer	Description of stratigraphy	Contents of layer
A	Soft fill, plant remains, crumbly rock.	
B	Wall 1, retaining wall of rock with clay plaster, changed direction slightly at E end. Wall plastered on N side with rough surface of clay plaster.	Wall 1.
C	Fill of rock, clay, compact plant remains, some <i>shicra</i> .	Construction fill below Wall 1.
D	Fill of rock, clay, little plant fiber. Some <i>shicra</i> .	Burned rock and shell.
E	Large rocks, clay mortar in compact mass.	
F	Large angular rock with clay mortar. <i>Shicra</i> , loose soil.	Burned rock.

Phases of occupation (Table 11ee–gg)			
Phase	Layers	Description	Dated samples
I	A, B	Construction of Wall 1 divides deposits into two phases. Phase I included period following construction of Wall 1, material in Layer A and two subsequent deposits of fill.	A date of 1620 Cal BC (GX-30513) (Table 11ee) obtained from a <i>shicra</i> fragment at the base of Wall 1.
II	C–F	Deposits prior to construction of Wall 1, including D–F. These were either different sources of fill or different episodes of construction.	<i>Shicra</i> fragment from this layer dated to 2150 Cal BC (Beta 184859) (Table 11ff). Mixed plant fibers provided a date of 2390 Cal BC (ISGS-5532) (Table 11gg).

TABLE 18. Caballote, Sector D, Test Unit 3—2004.

Stratigraphy (Fig. 22)			
Layer	Description of stratigraphy	Contents of layer	
A	Loose, fine beige sediment, a little coarse sand, few rocks distributed irregularly within layer. Slightly less compact on N end. Toward center, small compact areas approximately 10 cm diameter were present, possibly caused by humidity. Likely recent formation of wind-blown material and rubble.	Cultural materials not abundant, included shell fragments, lithics, a few plant remains, some ceramic fragments.	
B	Medium-gained, compact beige sediment containing small concentration of ash in S half of unit, 8 cm in diameter. A whitish material was dispersed through the layer, concentrated in center, possibly decomposed rock with high carbonate content. Layer was a use surface, now highly deteriorated.	Shell fragments, botanical remains, lithic fragments.	
C	Loose light pink gravel with little cultural material; may have been use surface. Near N corner of pit, concentration of insect casings. Intrusive pit filled with sediment, trash was labeled Feature 1. Contents included botanical remains, fragmented shell, one fragment of plain pottery. Feature 2, near the N corner of the unit, 13 cm in diameter. F.2 was filled with loose gray medium to coarse-grained sediment. Feature 3, pit feature located SE of F. 2, filled with loose gray medium to coarse-grained sediment. Contained few cultural remains, 11 cm deep. Feature 4, S of F. 2, small pocket of plant remains.	Three small pit features originated in Layer D, extended into Layer E. F.2 materials included leaves, charcoal, lithic fragments, fish vertebrae. F. 4 included leaves, plant stems, charcoal.	
D	Cultural fill deposited prior to formation of use surface in Layer C. Three pits, Features 2, 3 and 4, intruded into Layer D from Layer C. Deposit of compact dark beige fine-grained sediment with little cultural material. Compact use surface formed along upper surface of Layer D. Shallowness of features associated with Layers C and D, suggests they were natural variations in the surface that filled with trash rather than areas specifically used for disposal, or postholes.		
E	Use surface formed by series of activities that took place on the sterile ground surface.	Feature 5, infant burial, intruded from Layer C through Layer D to 20 cm below the surface of Layer E. The matrix was outlined with medium-sized stones that appeared to surround the bundle (22 × 32 cm). Bundle wrapped in 1-2 layers highly deteriorated fabric. Innermost layer highly deteriorated, tied around middle with cord of twisted plant fiber. Infant was seated facing east. Cultural materials included stems, leaves, plant fiber, marine shell fragments, few lithics, charcoal fragments. Material below Layer E natural sediments. Unit extended below the layers of clear human occupation to examine possible deeply buried occupation; none found.	
Phases of Occupation			
Phase	Layers	Description	Dated Samples
I	B–C	Hard packed soil possibly associated with occupation and use, cemented by evaporation and salt. Layer C seals pit in which infant was interred.	
II	D, E, Feature 5	Use surface at top of Layer D. A fine layer of sand sealed the top of Layer D, including burial. Surface in use when infant was buried could not be identified.	No dates have been processed from this unit. Fabric that wrapped the infant was simple flat weave, suggesting the burial was from the end of the occupation. No artifacts associated.

TABLE 19. Caballete, Sector E, Trench 1—2003.

Stratigraphy (Fig. 24)			
Layer	Description of stratigraphy		Contents of layer
A	Visible on W side of trench, narrowing toward center. Matrix very fine sand grading toward clay.		Lithics, shell fragments, plant remains.
B	A mix of fine gravel with sand.		Lithics, shell, bone, textile fragments; beans, <i>lucuma</i> , squash, <i>paca</i> .
C	Rock, cultural fill, gravelly deposits. Cultural fill may indicate former ground surface; rock and gravel appear natural.		
Phases of occupation (Table 11hh, ii)			
Phase	Layers	Description	Dated samples
I	A	Fine clay deposited by wind and water; fill postdates active use of area. Postabandonment accumulation in low points of ground surface.	Two dates were obtained from Layer B. Charcoal sample dated to 3120 Cal BC (GX-30514); mixed plant fibers dated to 2520 Cal BC (ISGS-A0477) (Table 11hh, ii).
II	B	May be flood deposits that filled depression excavated into Phase III.	
III	C	Natural deposits of gravel and rock with layer of cultural fill at top may indicate former ground surface.	

TABLE 20. Caballote, Sector E, Test Unit 5—2004.

Excavation (Fig. 26)			
Level	Thickness	Description	Contents
0	9.5–17	Uniform loose gray soil.	Few small stones.
1	9–14	Sandy, fine-grained light gray soil. A compact irregular layer over deposit of loose soil.	Shell, lithics, botanical remains, small fragments of charcoal.
2	13–15	Pale compact, clayey deposit, some small angular rocks within matrix. Below was deposit of brown gravelly soil, increasing proportion of gravel with depth.	Shell, plant fiber, botanical remains, charcoal fragments, lithics, feathers, lumps of clay that appear to have been mortar.
3	24–32	Fine pale gray gravel. As the level was excavated the gravel was somewhat coarser and the color a darker gray.	Shell, plant fiber, botanical remains, a few animal bones from the upper portion. Toward the base, the matrix appeared to be culturally sterile.
3A	0–4	Materials associated with the bottom of Feature 3.	Some botanical remains, shell, charcoal.
Stratigraphy			
Layer	Levels	Description of stratigraphy	Contents of layer
A	0	Fine, loose, beige sediment with aeolian sand. Narrow, from 3–10 cm thick. Angular rock forms irregular natural inclusions. Layer inclined slightly from E to W.	Little cultural material other than shell.
B	1 (upper)	Fine-grained slightly clayey light beige to orangey compact earth, tilted like the layer above, almost 5 cm at the W end of the unit and practically invisible at the E end. Small angular rocks concentrated toward W side of unit.	Plant remains, fragments of shell, small pieces of charcoal, some lithics. Botanical material concentrated in large pit (Feature 1) in SW corner began in Layer B, continued into next layer. Layer B may be mix of existing deposits and aeolian material during a humid period with sporadic human occupation.
C	1, 2	Fine to medium-textured grayish brown to light beige uncompacted soil. Like Layer B this layer was tilted from E to W.	Shell, plant fiber, other botanical remains, charcoal fragments, lithics, feathers, clay fragments that appear to be mortar. Most material concentrated in intrusive pit on W (Feature 2) with several large angular rocks.
D	2	Fine to medium-textured loose dark brown soil mixed with sand and medium-sized gravel. Like Layer C, matrix included small angular rock.	Shell, botanical remains, some animal bone, most from pit visible in N profile (Feature 3) intruded into sterile gravel.
E	3, Feature 3	Medium to coarse light gray gravel underlies occupation layers. Within layer are numerous thin layers of caliche, indicating episodes of high humidity or pooled surface water prior to site occupation.	No cultural material recovered.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A, B	Surface of compact soil, pits including Feature 2 excavated into surface. Feature 2 contents not distinctive; either natural and filled with material that washed or blew in, or man-made pit.	
II	C, D	Remains of first occupation on this surface, assumed related to main occupation. Feature 2 intruded into Layers C and D.	
III	E	A large intrusive pit in W side of unit (Feature 3), with several large angular rocks. With Layer D, this comprises first occupation in this locality since Feature 2 was excavated into the surface. Contents of Feature 3 not distinctive despite being intentionally excavated pit.	

TABLE 21. Caballete, Sector F, Test Unit 1—2004.

Excavation (Fig. 27)			
Level	Thickness	Description	Contents
0	0–15	Loose, sandy soil.	Small rocks.
1	0–12	Fine, loose sediment mixed with fine gravel; disturbed surface materials, thick layer of ashy sediment in NE.	Shell fragments, textile, lithic fragments, a few charcoal fragments, human remains left by looters.
2	16–19	Fine loose sediment mixed with small gravel and rocks up to 10 cm; mixed natural and cultural material.	Shell, textiles, lithics, fish bone, botanical remains, burned rock, human hair, charcoal, clay with embedded plant fiber.
3	12–13	Fine, loose soil in Level 2 replaced on N by loose, light gray gravel without cultural content. In S, compact clay associated with carbonized material was identified.	Small rocks, shell fragments, textiles, fish bone, seeds, hair, <i>Tillandsia</i> sp., charcoal. On N, a few small pockets of charcoal were associated with unburned botanical remains.
4	1–29	Compact, fine light brown clay soil with a number of small stones concentrated toward S side of level. N portion culturally sterile fine gravel.	Numerous textile fragments in S part of pit in compact sediment containing shell, plant fiber. Textile concentration suggests textiles were wrapped around burial (Feature 1). Remains of infant excavated separately from rest of unit, deposited in fine light brown clay soil containing few small rocks, textiles, botanical remains, some shell. Burial placed on concentration of plant fiber, wrapped in textiles. Cranium in pieces though majority of bones recovered intact. Infant in fetal position, right side, lightly flexed. S wall profile indicated burial excavated into gravel, filled with light brown soil.
5	14–23	After burial removal, Level 5 excavated across unit. Loose gray gravel with few larger rocks on N side. In S end, small quantity of clay containing charcoal, shells, fish bone, plant remains, seeds, quartz fragments was recovered. In N side of unit, gravel was natural without cultural content; level was excavated only on S side.	Near base and to the S, some clayey soil may indicate presence of another grave.
6	12–20	Excavated only in E half of unit. Contained gravel mixed with light brown clay similar to infant burial in Feature 1.	Charcoal, lithics, bone, seeds, textiles, <i>Tillandsia</i> sp. remains of a basket recovered. The basket suggested another burial, probably related to infant in Feature 1, entire layer was excavated, mostly culturally sterile.
7	8–10	Natural deposit of culturally sterile gray gravel on N. On S side, deposits changed to brown. In S end some large stones were recorded just below level of basket.	Under infant burial, layer of culturally sterile gravel found in N side of unit continued, showing infant burial pit was intrusive. S side was mix of clay and gravel, <i>Tillandsia</i> sp., other fibers. Basket inverted over gourd bowl and cranium in pit just N of large rocks (Feature 2). Adult female wrapped in textile, on bed of plant fibers, wrapped in mat of tied reeds. Individual reclined on her back with knees to chest and arms at sides. Disintegrating textiles covered bundle. Funerary objects included three gourd bowls, one found near basket covering cranium, two by feet. A few metal beads found during removal of burial began were necklace of numerous pyrite and one gold bead (see text for description). On S under large rocks was layer of reeds with other offerings, four obsidian blades, one obsidian fragment, four shell beads, one small spindle whorl with faces incised around circumference, one whole mollusk valve, implements of wood and bone 5–10 cm long, reeds presumably associated with mat or textile production.
8	37–47	Culturally sterile gray gravel visible when Feature 2 was removed. Excavation continued 50 cm, testing equivocal evidence of cultural remains. Cultural deposits did not continue.	

Stratigraphy

Layer	Levels	Description of stratigraphy	Contents of layer
A	0	Gray aeolian soil mixed with fine sand, loose texture. Small, angular rocks irregularly distributed in matrix. Deposits inclined slightly N/S, averaging 3 cm thick, apparently recent, wind-borne deposit.	Small quantity of shell.
B	1–7	Compact, fine-textured, light beige sediment, some sand. Most evident in NW corner of pit, 7 cm thick, with small angular rocks. Intrusive pit held Feature 1 and Feature 2 burials. Characteristics and contents indicate long process of wind accumulation mixing natural and cultural soils after site occupation and abandonment. Humid conditions may have produced compacting of this layer representing a long period when Caballete was not occupied.	Mollusk valves, animal bone, small fragments of charcoal, irregularly dispersed.
C	1, 2	Surface deposit of midden from occupation. Uncompacted fine-grained beige soil darker than previous layer. A little charcoal, a few small and medium-sized rocks. Like Layer B, Layer C is present only in N half of unit, 7–10 cm thick. Deposits formed similarly to Layer B.	Charcoal fragments, shell, textile fragments, lithics, bone, in heterogeneous distribution within matrix.

TABLE 21. *Continued.*

Stratigraphy			
Layer	Levels	Description of stratigraphy	Contents of layer
D	3-7	Fine-grained beige uncompacted soil with large quantity of small and medium sized rock, few large rocks, distributed irregularly through matrix. Greatest concentration of rock on N side of pit. Noticeably thicker than previous layers, 20-30 cm, deepest on S end of excavated area, 36 cm thick with N/S tilt. Layer was major deposition of rubble following principal occupation of Sector F. Materials dispersed from N to S, filling slight declivity that determined the form of subsequent layers. Near end of formation of this layer, intrusion at S end of pit was created, burial pit for two individuals, Features 1 (infant) and 2 (adult). Burials associated with layers of <i>Tillandsia</i> sp.	More cultural material than previous levels, shell, deteriorated textile fragments, lithics, fish bone, botanical remains, burned rock, hair, charcoal, clay with plant fiber inclusions. Gourd bowls, basketry, metal, shell beads, ceramic fragments associated with the adult. After the burial, the pit was covered with mixed earth from the disturbed layers, suggesting the interments date to a period after the Late Archaic and postdating the main occupation.
E	2, 3	Fine dark brown somewhat compact sediment, with ash in several places, covered in others by narrow layer of loose gray gravel. Layer extends across entire unit except for extreme S, burial pit. Top of layer at time of excavation was compact use surface. Former surface, used during main occupation of site, was created of soil trodden over gravelly terrain. After final abandonment, layer was covered with loose aeolian gravel, in turn covered with rubble from collapse of structures adjacent to excavated pit.	Shell, textile fragments, fish bone, seeds, <i>Tillandsia</i> sp., animal hair, small charcoal fragments. Most charcoal fragments pressed into layer's surface. On N side, layer filled two small holes in gray sterile gravel beneath, some charcoal and botanical remains.
F	3-8	Deep deposit of coarse light gray gravel, loose to slightly compacted, narrow lenses of pale beige in successive superimposed layers.	No cultural material.
Phases of occupation (Table 11jj, kk)			
Phase	Layers	Description	Dated samples
I	A, D, E	Includes material from occupation of Caballete in Layer E through abandonment of site.	
II		Includes intrusive burials Features 1 and 2.	A sample of plant fiber associated with the infant burial dated 940 Cal BC (ISGS-5724) (Table 11jj). A radiocarbon date from plant fiber associated with the Feature 2 burial dated 680 Cal BC (ISGS-5729) (Table 11kk).

TABLE 22. Radiocarbon dates from Cerro Blanco 1.

Sample	Provenience	Level/Layer	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2—1σ range	95.4—2 σ range
a	Sector A, Profile 1	U(21)	mixed plant fibers	ISGS-5526	1690	3370	80	-28.4	1747-1602 (76.9); 1590-1533 (23.1)	1883-1495 (100.0)
b	Sector A, Profile 1	F(6)	fiber bag	GX-30515	1360	3110	70	-10.8	1486-1485 (0.4); 1453-1294 (99.6)	1523-1193 (99.1); 1172-1168 (0.3); 1142-1133 (0.6)
c	Sector A, Profile 1	L(12)	fiber bag	Beta-183317	1330	3080	70	-25.6	1427-1265 (100.0)	1496-1187 (95.4); 1183-1154 (2.8); 1146-1130 (1.8)
d	Sector A, Profile 2		fiber bag	GX-30516	1190	2960	70	-26.4	1291-1279 (4.0); 1270-1108 (78.3); 1104-1056 (17.6)	1393-996 (99.9); 982-981 (0.1)
e	Sector A, south looters' hole	hole 2	fiber bag	Beta-183316	1190	2960	70	-24.2	1291-1279 (4.0); 1270-1108 (78.3); 1104-1056 (17.6)	1393-996 (99.9); 982-981 (0.1)
f	Sector B, Profile 3		fiber bag	Beta-183318	1340	3090	70	-24.6	1432-1287 (92.6); 1284-1269 (7.4)	1500-1189 (96.8); 1180-1157 (1.9); 1145-1130 (1.3)
g	Sector C, TU 1	3	fiber bag	ISGS-5716	1950	3600	70	-27.9	2120-2095 (8.4); 2041-1879 (89.7); 1837-1832 (1.8)	2140-1754 (100.0)
h	Sector C, TU 2	3	mixed plant fibers	Beta-183319	1730	3420	70	-25.5	1873-1844 (12.7); 1814-1800 (5.8); 1778-1629 (81.5)	1894-1598 (92.9); 1595-1531 (7.1)

Calibrated date intervals from Cerro Blanco 1

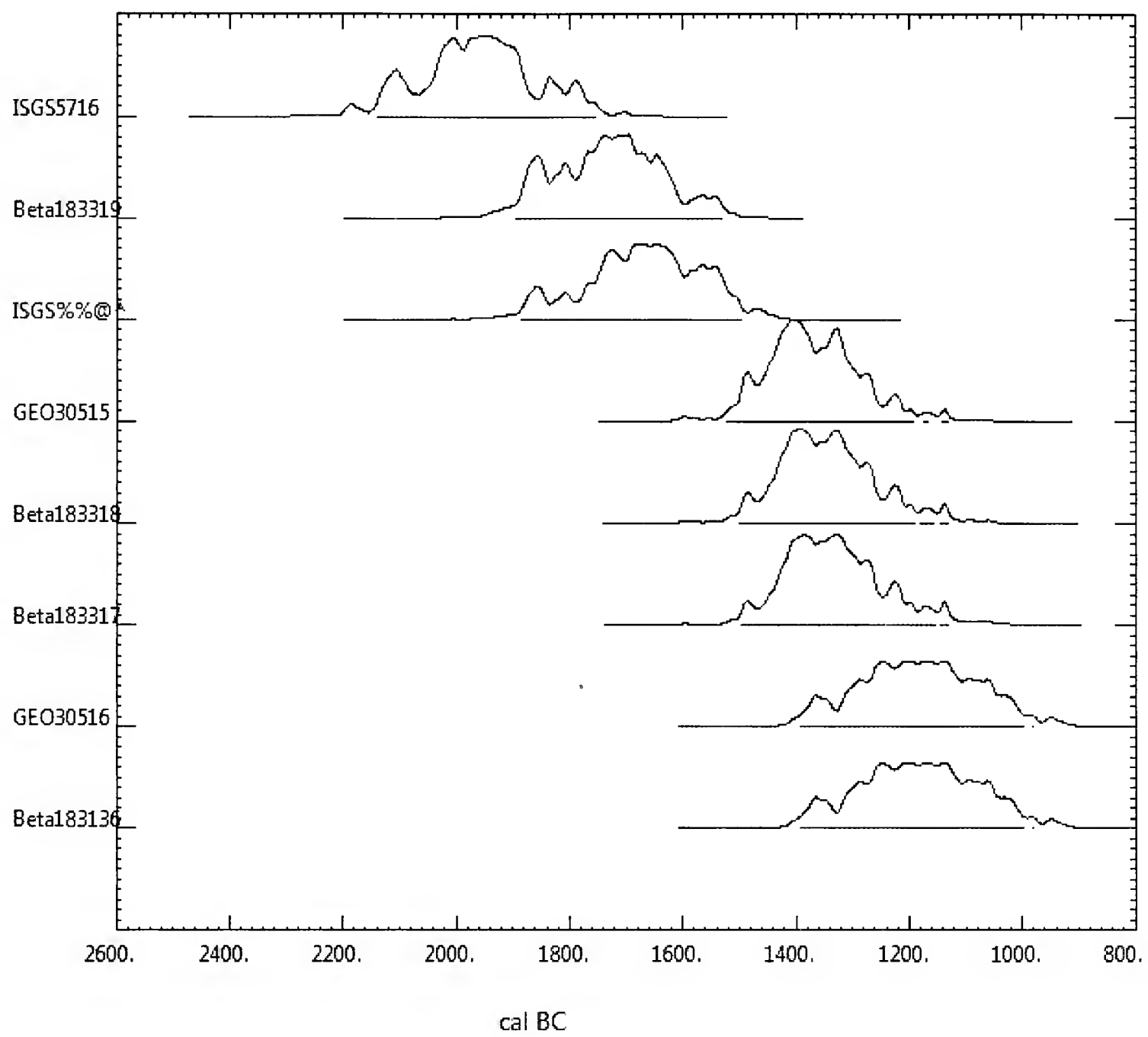


TABLE 23. Cerro Blanco 1, Sector A, Profile 1.

Stratigraphy (Fig. 31a, b)		
Layer	Description of stratigraphy	Characteristics of layer
A	Collapse and erosion on outermost margin of cut into Mound A.	Angular rock in loose earth.
B	Additional material from collapse.	Lens of loose soil with few small rocks.
C	Wall 1, a retention wall.	Angular rock in clay mortar, smooth, unpainted plaster surface.
D	Wall 2, a retention wall.	Angular rock in clay mortar covered with clay plaster, finished with smooth layer of yellow plaster.
E	Fill between Walls 1 and 2.	Walls 1 and 2 are close together, probably constructed about the same time. Fill between walls consists of angular rock, plant fiber, earth.
F	Construction fill of <i>shicra</i> .	<i>Shicra</i> made with braided plant fiber (stripped or beaten stems); braided untreated whole plant stems. Substantial construction episode includes all material between Wall 2 and Wall 3.
G	Deposit running under Walls 1, 3, and 4 may be among oldest deposits recorded in this unit.	Fine, loose gravel, angular rock, plant remains.
H	Wall 3, E side of rubble-filled structure.	A row of large and medium-sized rocks set in midden and soil. Exterior (E) side of wall covered with thick clay plaster.
I	Fill between Walls 3 and 4.	Large and medium-sized rocks with midden and soil.
J	Base of Wall 3.	Dark-colored clay and rock forming hard surface.
K	Wall 4, W side of a rubble-filled structure.	Large rocks in clay mortar with unpainted plaster on W side, toward center of mound. Walls 3 and 4 were part of single large structure; Wall 3 plastered on E side only, Wall 4 plastered on W side only, forming two sides of rubble-core wall.
L	<i>Shicra</i> fill.	<i>Shicra</i> , two types similar to Layer F above.
M	Clay floor associated with the plaster surface of Wall 4.	Floor on top of layer of fine gravel. Materials in Layer L deposited after Layer M no longer in use.
N	Fill to level area of <i>shicra</i> fill.	Fine gravel leveled <i>shicra</i> layer over Floor M.
O	Floor.	Clay and gravel, burned patches visible. First of several occupation floors made over gravel in Layer N.
P	Deposit creating level surface over O.	Lens of gravel laid down between floors.
Q	Floor.	Floor of untempered clay (no added plant material).
R	Floor.	Floor of untempered clay, extending upward onto Wall 5.
S	Floor, remodeling of Floor R.	Clay and gravel floor, also associated with Wall 5. Evidence of final occupation on Mound A.
T	Wall 5.	Row of stones set in clay mortar with plastered face part of Floor R.
U	Fill over Floor S.	Rock, loose soil over Floor S, intentional or result of postabandonment collapse of structures.
V	Fill layer.	Rock and plant fiber in dark soil.
W	Wall W.	Row of stones set in dark-colored hard clay mortar.
X	Fill inside Wall 6.	Large rocks in dark soil.
Y	Floor Y.	Dark-colored clay floor with yellow plaster surface at base of Wall 4. This may be small piece of Floor M.
Z	Floor Z.	Dark-colored clay with yellow plaster surface.
AA	Floor AA on top of G.	Deteriorated clay floor. Floor AA touches Wall 4, does not appear to run under the wall, no evidence that floor curves up along inside of Wall 4.
BB	Prefloor above Layer G between Walls 2 and 3.	Dark-colored gravel layer between floors.
CC	Floor surface.	Badly deteriorated clay floor, over prefloor BB.

Phases of occupation (Fig. 31b)			
Phase	Layers	Description	Dated samples
I	O, P, Q, R, S, T, U, V, Wall 5	Final phase of occupation includes Wall 5 (T, V), associated floors and layers O, P, Q, R, S. Layer S was later covered by fill in Layer U.	Mixed plant fibers from Layer U dated 1690 Cal BC (ISGS-5526) (Table 22a).
II	F, J, M, Y, BB, CC, Wall 3, Wall 4	Phase IIa construction of double-sided, rubble-filled wall, Walls 3 and 4, and fill between them, raising Mound A 2 m. Includes period when space created by plastered face of Wall 4 and floor M in use. Wall 1, W of Layer F built at same time as Walls 3 and 4. Layer J a footing for Wall 3. In addition to floor M, floor segments BB, CC, and possibly Y were in use in rooms on either side of double-faced wall. Phase IIb construction filled space between Wall 4 and center of mound after room with Floor M abandoned. <i>Shicra</i> (Layer L) raised mound substantially, in place before seismic event toppled double faced wall (Walls 3 and 4). Layer F perhaps deposited at this time. Layer N natural aeolian layer or added after seismic event. Floor O created and then covered by P, a layer of fine gravel apparently for leveling.	One radiocarbon sample from Layer F dated 1360 Cal BC (GX-30515) (Table 22b). One sample of a <i>shicra</i> bag from Layer L dated 1330 Cal BC (Beta-183317) (Table 22c).

TABLE 23. Continued.

Phases of occupation (Fig. 31b)			
Phase	Layers	Description	Dated samples
III	G, Wall 2, Wall 6	Underlies extensive wall building (Walls 1, 3, and 4) episode prior to seismic event. Wall 2 much shorter than Wall 6, topped with wall plaster, indicating that it stands at finished height. Wall 2 may be more recent than Wall 6. Alternatively, Wall 6 may originally have been low, enclosing an extensive level floor area with Wall 1. Wall 6 may have been raised later. Wall 6 remains earliest construction visible. Wall 1 may be original wall forming side of room with Wall 4 with Layer AA as floor. Wall 2 may be bench or retaining wall added after Wall 1 to combat erosion or support Wall 1.	
IV	G, J, Y, AA, BB, CC	Includes earliest use of area cleared, when Mound A consisted of low platform. A floor was built on this mix of gravel and rock. Several fragments extend across profile, including Y, AA, BB, CC.	

TABLE 24. Cerro Blanco 1, Sector A, Profile 2.

Stratigraphy (Fig. 33)			
Layer	Description of stratigraphy		Characteristics of layer
A	Thick layer including Wall 1.		Large rocks, clay mortar.
B	Two use surfaces.		Floors 1 and 2 were compact, made of solid clay, without added fiber or gravel, probably formed by sprinkling water on clay, stamping or pressing the surface to flatten and smooth it.
C	Leveling area prior to making Floors 1 and 2.		Compact gravel leveled construction in its final stages, possibly over a course of large rocks at base of gravel.
D	Construction fill.		<i>Shicra</i> bags filled with angular rock.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A	Final use of mound, when walls of angular rock, clay mortar were built on top of floors constructed during Phase II. From limited area cleared, cannot determine whether walls along side of looters' pit were part of Phase II construction and occupation or subsequent construction.	
II	B	Clay floors built over layer of gravel. Floor 1 is remodeling of Floor 2, using same clay and with no intervening deposits; indicates continuous or closely spaced occupation.	
III	C	Leveling of <i>shicra</i> construction in final stages.	
IV	D	Layer of <i>shicra</i> bags used in construction of body of mound, oldest activity identified.	A date of 1190 Cal BC (GX-30516) (Table 22d) obtained from Layer D <i>shicra</i> fragment.

TABLE 25. Cerro Blanco 1, Sector B, Profile 3.

Stratigraphy (Fig. 34)			
Layer	Description of stratigraphy		Characteristics of layer
A	Disturbed material from looting.		Angular rock in loose brown soil.
B	Use surface or Floor 1.		Compact clay.
C	Layer under floor in Layer B, perhaps to level surface.		Thin layer of gravel.
D	Construction fill.		Angular rock, <i>shicra</i> in substantial construction.
E	Floor 2, possibly side of a room, as clay layer turns upward onto side of unit.		Compact clay.
F	Prefloor or leveling event.		Thin layer of gravel just below floor in Layer E.
G	Floor 3.		Compact clay, without gravel below in contrast to Layer E and B floors.
H	Construction fill.		Thick layer of <i>shicra</i> and rock.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A, B, C, Floor 1	Occupation of Floor 1, gravel layer below floor presumably used to level surface. After use ended, Floor 1 gradually covered by wind-borne material disturbed in recent times by looting.	
II	D	Construction episode represented by thick layer of fill.	
III	E, F, G, Floors 2 and 3	Multiple phases of use or remodeling of floors. Corner of a room may be exposed in Phase III.	
IV	H	Construction episode. Deposits continue below area cleared.	Layer H was dated 1340 Cal BC (Beta-183318) (Table 22f).

TABLE 26. Cerro Blanco 1, Sector C, Test Unit 1.

Excavation (Fig. 35)			
Level	Thickness	Description	Contents
1	0–30	Large rocks, dark soil, reddish patch in NE that included burned ceramic fragments and no shell.	Ceramics, lithics, shell, textile fragments, bone, heat-fractured rock.
2	10–13	Soil with ash and angular rock.	Botanical remains, textile fragments, lithics, shell.
3	19–29	Rock and soil, with depression or hole in S side of level holding textile fragments, charcoal. Culturally sterile soil in NE corner.	Lithics, botanical remains, shell, two sherds, textile fragments, charcoal.
4	7–15	Rocks in loose earth.	Lithics, shell, botanical remains in upper portion of level.
Stratigraphy			
Layer	Description of stratigraphy		Characteristics of layer
A	Concentration of rocks.		Rock mixed with orangey soil lacking cultural material.
B	Brown, gravelly soil.		No cultural material.
C	Similar color to A.		Gravel and rocks with orangey soil lacking cultural material.
D	Hard, compact soil.		More compact than other layers, lacked cultural material.
E	Midden deposit may have filled in a pit.		Concentration of plant material, textiles, shell, loose earth, rock.
F	Soil with ash, may be recent from adjacent fields.		Concentration of shell, textile fragments, no other botanical remains.
G	Midden deposit.		Ash mixed with soil and shell, more than in Layer F. Some textile fragments.
H	Gravel and rock layer.		Loose orangey soil with rock and gravel lacking cultural materials.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A, F, G	Uppermost layers identified by texture and color. Layers A and G may be of similar origin with Layer F an intrusive pit or where wind and water deposited material in subsidence. Each layer included soil with ash, large quantity of shell, few rocks, midden, evidence of occupation nearby.	Level 3 Samples of plant fibers dated 1950 (ISGS-5716) and 1730 Cal BC (Beta-183319; Table 22g, h).
II	E	Intrusive deposit predates Phase I. Distinctive form deposit, as though a pit were excavated and then filled with debris and additional material spread around it, perhaps during process of refilling. Loose soil with ash, rock, burned textile fragments. Provides only evidence of human presence in unit.	
III	B, C, D, H, I	Varied deposits of gravel in loose soil (B, H); rock in orangey soil lacking cultural material (C, I); compact earth, culturally sterile (D).	

TABLE 27. Cerro Blanco 2, radiocarbon dates.

Sample	Provenience	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2---1σ range	95.4---2σ range
a	Trench, under Floor 2	mixed plant fibers from clay mortar	GX-30629	1700	3390	70	-15.4	1861-1852 (2.9); 1771-1607 (91.9); 1570-1561 (3.3); 1546-1541 (1.9)	1880-1836 (8.1); 1835-1523 (91.9)
b	Trench, Layer M	fiber bag	Beta-184860	1980	3630	80	-10.1	2132-2083 (20.6); 2058-1893 (79.4)	2204-1766 (99.6); 1764-1758 (0.4)
c	Trench, Layer H base of Wall 2	mixed plant fibers from clay mortar	ISGS-5538	2130	3720	90	-26.7	2280-2250 (9.0); 2230-2219 (2.8); 2211-1012 (81.7); 1999-1978 (6.6)	2456-2419 (2.2); 2406-2376 (2.0); 2351-1889 (95.9)

Calibrated date intervals from Cerro Blanco 2

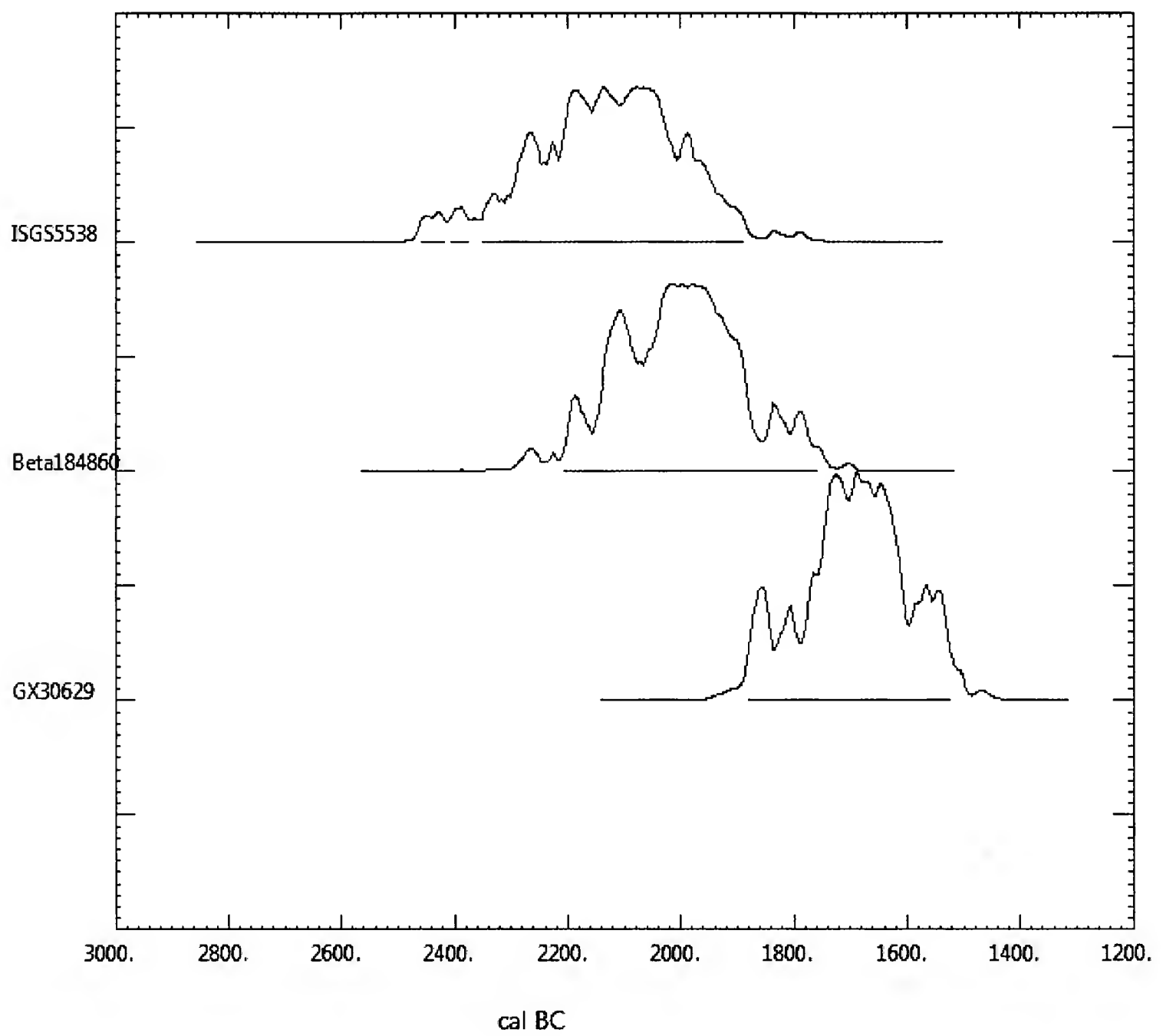


TABLE 28. Cerro Blanco 2, Trench 1, main mound.

Stratigraphy (Fig. 38a)			
Layer	Description of stratigraphy	Characteristics of layer	
A	Extensive deposit/construction phase without <i>shicra</i> bags or large rock.	>1-m deposit of compact, gray gravelly soil, small rocks.	
B	Layer of rock intruding into Layer A, possibly part of Layer A though different material.	Compact fine gray gravel with medium-sized rocks.	
C	Distinct gravelly layer.	Compact gravelly soil with medium-sized rocks, inclusions of gray plant fiber.	
D	Thin layer of ash.	Ash layer in fine, loose soil, possibly wind deposit.	
E	Layer of soil and cultural materials.	Powdery beige soil, few cultural remains. Small pocket of dark brown burned earth with powdery texture within Layer E.	
F	Thin layer of soil and caliche.	Powdery light brown soil, few cultural remains. Patch of soil hardened by salt deposits.	
G	Thin layer lacking cultural material.	Fine gravel, rock.	
H	Includes all construction elements associated with Wall 3, running E/W along profile.	Area of caliche, rock, patches of compact gravelly light brown soil, patches of rock with clay mortar, fiber inclusions. Some mortar adhered to rocks used in construction with rock and caliche.	
I	Layer may be continuation of Layer A, though radiocarbon date from lower deposits suggests Layer I was debris/fill postdating construction of mound terraces formed by Walls 1–3. At base of Layer I was Floor 1, poorly preserved, but evidence of at least one replastering.	Gravelly soil, medium-sized rock, inclusions of plant fiber.	
J	Layer of soil over a floor of clay tempered with plant fiber.	Medium-sized rocks in powdery soil. At base use surface, Floor 2, clay mixed with plant fiber, applied while wet. Floor 2 remodeled at least once.	
K	Layer below Floor 2.	Compact light brown gravelly soil with shell, lithics, plant remains.	
L	Layer below Floor 2.	Loose gray gravelly soil with shell, lithics, plant remains.	
M	Layer of construction material.	Compact light brown soil, rock, <i>shicra</i> , cultural materials.	
Phases of occupation (Fig. 38b)			
Phase	Layers	Description	Dated samples
I	A, B, C	During Phase I a retaining wall, Wall 2, was constructed and filled with medium-sized rocks. Lowest level of fill included gravel, clay, plant fiber. Caliche formed in the fill (Layers A and B). Wall 2 extended SSW from Wall 3, creating a corner of mound with Wall 1, remnant of which was identified in SE corner of area cleared. This area appears to have been corner of terrace along side of mound visible from valley. No further large-scale construction in area after this phase.	
II	D, E, F, G	Layers E, F, G, narrow layer of ash and cultural remains above them (Layer D). Layers tilted under Wall 1 and predate all subsequent construction cleared in Trench 1.	
III	H, I, J, K, L, M	Occupation during which two use surfaces (Floor 2) and two plastered floors (Floor 1) were constructed, alternating with layers of fill (Layers J–M) including <i>shicra</i> at lowest level. These surfaces and floors lie beneath Layer I.	A sample extracted from Layer J, Floor 2 dated to 1700 Cal BC (GX-30629) (Table 27a). <i>Shicra</i> from Layer M under Floor 2 dated to 1980 Cal BC (Beta-184860) (Table 27b). Plant fibers from the clay mortar at base of Wall 2, Layer H dated 2130 Cal BC (ISGS-5538) (Table 27c).

TABLE 29. Cerro Blanco 2, Profile 1.

Stratigraphy (Fig. 39)		
Layer	Description of stratigraphy	Characteristics of layer
A	Aeolian surface deposit.	Fine, powdery tan sediment.
B	Mixed deposit mostly gravel, some soil.	Materials that accumulated over time after final use of site. Light brown to tan, no cultural material.
C	Surface and lens of hard-packed soil, possible use surface associated with adjacent looted zone.	Tan, fine-grained soil, charcoal flecks.
D	Gravel and aeolian deposits between compact soil layers.	Appears to represent hiatus in use of burial zone.
E	Thick layer of compact soil associated with use of adjacent burial zone.	Light brown, few cultural materials.
F	Possible use surface, distinct layer below E.	Tan gravelly soil.
G	Gravel layer distinguishable from surroundings.	Tan gravel.
H	Gravel below ash Layer I.	Tan gravel.
I	Ash lens between gravel layers.	May indicate burning associated with burial activities.
J	Use surface.	Brown soil with few cultural remains, possibly associated with adjacent burials.
K	Gravel matrix.	No cultural material.

Phases of occupation

Phase	Layers	Description	Dated samples
I	C, D, E, F, G, H, I	Surface associated with burial event, Layer D, representing final use of area; no layers above it contained cultural material. Layers G and I also associated with a burial event. Both layers would postdate occupation of mound structure. Material in Layer I may be remains of fire associated with use surface or from later use.	No samples were dated from this profile.
II	H, J, K	Earliest use of area, indicated by brown soil, artifacts in Layer J use surface.	

TABLE 30. Huaricanga, Sector B, Profile 2.

Stratigraphy (Fig. 43; Fig. 44)		
Layer	Description of stratigraphy	Characteristics of layer
A	Construction fill.	Angular rock, rectangular adobes, gravel, rock chips in matrix of partly compacted beige soil with shell, plant fiber.
B	Remodeling of floor associated with Wall 1.	Clay floor extending along portion of wall and onto floor C.
C	Floor associated with Walls 2 and 3.	
D	Base for Floor C.	Fine gravel, compact soil.
E	Construction of Wall 2.	Partly compacted soil, fine gravel, medium-sized angular rock.
F	Floor associated with Walls 2–4.	Fine gravel, medium-sized rock with plant fibers.
G	Fill between Wall 5 and Wall 6.	
H	Construction fill.	Medium and large-sized rock with fine gravel and partly compacted soil.
I	Remodeling fill.	Large rocks in fine gravel, soil, dried clay mortar fragments.
J	Remodeling of floor associated with Wall 5.	Section of clay floor extends from base of Wall 5 on top of Floor K.
K	Floor associated with Wall 6; floor covers Wall 8.	Clay floor starts at base of Wall 6 and top of Wall 9, extending across top of Wall 8 forms thick floor layer, ending in rock fall part of Layer I.
L	Construction fill from Wall 6; same fill covered Walls 7 and 9.	
M	Base of Floor K.	Ash, fine gravel.
N	Floor associated with Wall 8.	
O	Fill layer.	Ash, fine gravel.
P	Thick use surface.	Clay.
Q	Remodeling layer.	Fine, gravelly fill.
R	Floor.	Clay.
S	Remodeling fill.	Fine gravel, small rocks, soil.
T	Fragment of floor associated with Wall 8	
U	Floor fragment.	Clay.
V	Construction fill.	Fine gravel, partly compacted soil.
W	Floor associated with Wall 9.	
X	Floor associated with hearth.	
Y	Base of Floor X.	Fine gravel.
Z	Floor probably associated with Wall 7.	
AA	Layer below Floor Z.	Mix of charcoal, fine gravel.
BB	Fill below floor Z.	Loose, light brown soil with fine gravel, small rocks.
CC	Construction fill.	Rock, clay mortar fragments.
DD	Floor fragments.	Clay.
EE	Construction fill.	Earth, fine gravel.
FF	Remains of fire or material spread on floor surface.	Ash, fine gravel.
GG	Use surface.	
HH	Use surface.	
II	Construction fill.	Fine gravel, coarse sand.
JJ	Use surface.	Clay.
KK	Material between use surfaces, possibly to level surface.	Fine gravel, compact clay.
LL	Use surface.	
MM	Use surface or natural surface hardened by exposure to air and mist.	Partially compacted soil with fine gravel, small stones.
NN	May have been material used to level surface before construction of use surface (Layer MM).	Composed of partly compacted fine gravel, medium-sized stones.
OO	Base layer of material on which construction began.	Loose soil with fine gravel, small stones.
PP	Below all construction.	No cultural material, appears to be natural deposit.

Phases of occupation

Phase	Layers	Description	Dated samples
I	A	Occupation following deposition of Layer A. Rock from collapsed structures covers mound surface, walls do not extend into profile.	
II	B	Layer A, over 1 m thick in most places. Construction episode represents complete change in layout of structures on mound, possibly lapse in occupation separating Phases I and II.	
III	C	Construction and remodeling of series of structures. Initially, a room extended from Wall 7 to Wall 8, remodeled to extend between Wall 6 and Wall 4. Later remodeling reduced room to that visible between Wall 3 and Wall 4 with addition of fill layers G and L, later between Wall 1 and Wall 2, reducing size of room from maximum 4 m to less than 2 m. Construction of multiple floors visible in three other places along profile. Adjacent to the rooms added to the N, Layer I ends in Wall 10; N of Layer I, Layers CC–LL extend between Walls 10 and 11; N of this is less intensively occupied area includes Layers KK–OO. One other set of floor construction, remodelings visible in profile to the S (Y, AA, BB). These occupations should be divided into a more detailed sequence.	Layer G sample of plant fibers dated 2360 Cal BC (Beta-AMS 183320) (Table 31a), predates Walls 1 and 3, postdates Walls 5, 7, and 9.

TABLE 30. *Continued.*

Phases of occupation			
Phase	Layers	Description	Dated samples
IV		Earliest phase exposed in profile, Phase IV can be subdivided into four units extending across base of mound above layer of sand lacking artifacts, occupation. Horizontal stratigraphy includes Layer BB at S end of profile, thick layer of clay just above sand. Overlying N portion of BB is a floor, Layer W, extending from Wall 6 over top of Wall 8, ending at base of Wall 10. Lowest levels discontinuous at base of Wall 10; to N Layer LL runs below Wall 11. At northernmost end of profile, Layer OO includes additional fragments of floor running below other deposits.	Sample of charcoal from Layer NN dated to 2510 Cal BC (ISGS 5525) (Table 31b).

TABLE 31. Radiocarbon dates from Huaricanga.

Sample	Provenience	Level/Layer	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2—1σ range	95.4—2σ range
a	Sector B, Profile 2	G	mixed plant fibers	Beta-AMS 183320	2360	3870	40	-20.8	2456-2418 (26.6); 2408-2374 (23.5); 2368-2361 (3.8); 2356-2292 (46.1)	2467-2274 (88.7); 2256-2208 (11.3)
b	Sector B, Profile 2	NN	charcoal	ISGS-5525	2510	3970	110	-24.6	2829-2823 (1.0); 2626-2291 (99.0)	2870-2802 (6.1); 2779-2197 (92.9); 2167-2149 (1.0)
c	Sector B, TU 1	A	charcoal	Beta-199061	2570	4020	70	-25.0	2833-2818 (4.9); 2662-2649 (3.7); 2635-2465 (91.4)	2864-2805 (8.4); 2760-2341 (91.6)
d	Sector B, TU 1	4	charcoal	GX-31585	2260	3810	60	-25.6	2396-2395 (0.3); 2391-2385 (2.0); 2345-2191 (80.8); 2180-2141 (16.9)	2463-2130 (95.7); 2086-2049 (4.3)
e	Sector B, TU 1	5	charcoal	Beta-184861	2700	4110	70	-24.0	2862-2807 (24.4); 2758-2718 (16.6); 2706-2577 (59.0)	2880-2558 (92.0); 2554-2550 (0.4); 2537-2491 (7.5)
f	Sector B, TU 1	7	charcoal	GX-30507	3550	4780	50	-24.5	3639-3621 (16.5); 3607-3522 (83.5)	3654-3498 (87.0); 3435-3378 (13.0)
g	Sector B, Trench 1	Layer C, Sample B	charcoal	ISGS-A0481	2430	3940	40	-13.3	2548-2539 (5.3); 2489-2427 (50.8); 2426-2400 (18.4); 2382-2347 (25.5)	2567-2520 (13.9); 2498-2332 (80.7); 2327-2299 (5.4)
h	Sector B, Trench 1	Wall 4	mixed plant fibers	GX-30506	1040	2850	80	-13.1	1128-901 (100.0)	1260-1226 (3.5); 1223-835 (96.5)
i	Sector C, Profile 1		mixed plant fibers	Beta-183322	2340	3860	40	-23.6	2457-2418 (22.4); 2407-2375 (21.0); 2367-2362 (3.2); 2352-2285 (47.5); 2247-2235 (5.9)	2462-2269 (83.7); 2259-2206 (16.3)
j	Sector C, Profile 1		fiber bag	ISGS-5531	2440	3950	70	-10.4	2568-2518 (24.0); 2499-2344 (76.0)	2830-2822 (0.5); 2629-2268 (95.3); 2260-2206 (4.2)
k	Sector C, Profile 1		fiber bag	ISGS-5514	2620	4030	70	-10.4	2834-2817 (5.8); 2663-2647 (5.5); 2636-2468 (88.7)	2868-2803 (10.2); 2777-2429 (85.6); 2425-2400 (1.8); 2382-2347 (2.5)
l	Sector C, Profile 1		mixed plant fibers	GX-30508	2800	4230	90	-13.3	2918-2835 (36.3); 2817-2665 (62.0); 2645-2639 (1.7)	3086-3061 (1.3); 3029-2570 (98.1); 2514-2502 (0.6)
m	Sector C, Profile 3	C	charcoal	ISGS-5519	2220	3770	70	-25.1	2294-2124 (81.6); 2092-2043 (18.4)	2458-2417 (4.0); 2410-2022 (95.3); 1992-1983 (0.7)
n	Sector C, Profile 3	G	charcoal	Beta-183321	2390	3910	40	-21.7	2468-2390 (65.6); 2385-2345 (34.4)	2549-2538 (1.0); 2490-2284 (97.8); 2248-2234 (1.2)
o	Sector C, TU 2	4	charcoal	ISGS-5518	2400	3940	70	-20.5	2565-2532 (15.1); 2528-2525 (0.7); 2496-2338 (79.6); 2322-2309 (4.5);	2620-2604 (1.1); 2601-2592 (0.6); 2588-2205 (98.3)

Calibrated date intervals from Huaricanga

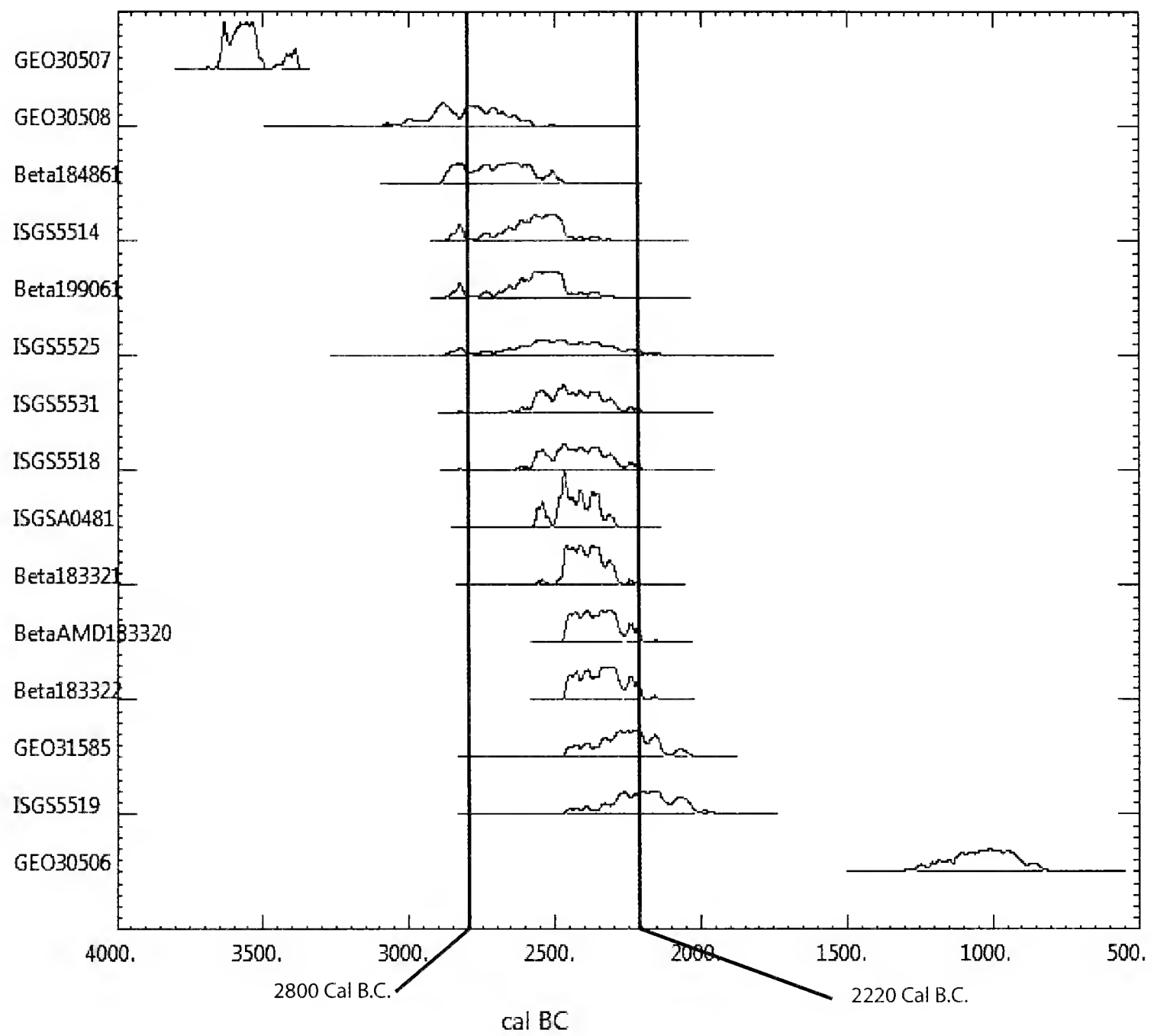


TABLE 32. Huaricanga, Sector B, Test Unit 1.

Excavation (Fig. 45)			
Level	Thickness	Description	Contents
1	4–15	Loose light brown soil; layer tilted slightly toward NE.	Small rocks, plant fiber.
2	41–50	Initially designated Layer A, a natural layer consisting of compact gray soil with small rocks. In some places fine gravel was part of layer, and in other places were concentrations of marine shell and patches of clay mortar. Field designation changed to Level 2, excavation ending at 65 cm below datum on S side and 84 cm below datum on E.	
3	0–16	Excavated to level the test unit, 16 cm in S and W of unit, very shallow in rest of unit.	Dark patches of ash within level; cultural material included shell, lithic fragments, bone, botanical remains.
4	9–11	Compact light brown soil. Fragments of clay mortar, small and medium-sized rocks with some gravelly soil, especially in E corner. On SW side soil appeared darker gray color than in NE corner. Rock proved to be part of wall crossing the excavation unit.	Despite the color change, contents of level were similar to previous level.
5	28–43	Loose fine gray gravel with small stones and lumps of baked earth. Wall running SE/NW divides level.	At base, sterile soil was visible at SW end, distinctly lighter reddish color than material above it, without any cultural contents.
6	19–34	Excavated on NE side of wall that crosses short axis of unit, narrow lens of fine brown gravel distinct and more compact than Level 5 soil. Two other large stones uncovered in N corner may be part of another wall segment.	Two large, shaped rocks uncovered beside Level 4 wall. Rocks likely fallen from wall.
7	26–33	Uncompacted dark brown trash. Distinct level of trash deposition contained more cultural material than preceding levels. No additional stones uncovered. Trash in Level 7 deposited over culturally sterile subsoil.	Marine shell, charcoal, botanical remains, very small rocks.
Stratigraphy			
Layer	Levels	Description of stratigraphy	Characteristics of layer
A	1, 2	Postdates us of area.	Small quantities of shell, charcoal, botanical remains.
B	2–4	Postdates Wall 1. Layer B resulted in filling and leveling area S of Wall 1, not clear whether this was intentional or natural buildup from collapse and erosion.	Marine shell, plant fiber, fragments of clay mortar.
C	2	Rock and mortar.	Concentration of rock used to create upper surface of platform ending at Wall 1.
D	2	Compact dark soil.	Fill used to create platform incorporating Wall 1.
E	4	Mixture of rock and earth.	Rocky soil used to create platform ending at Wall 1.
F	2	Dark soil and rock.	Platform fill.
G	6, 7	Layer of fill distinguishable from Layer H below.	Trash and fill, possibly placed to level area before construction of platform.
H	4–7	First occupation of locality, resting atop distinct pale tan-orange soil with no cultural material.	Distinctive layer of trash, thicker at E (downhill) side. Higher-density cultural material than in layers above.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A, B	Layer B deposited over platform, completely covering it. Volume of fill suggests intentional covering/ leveling effort. Layer A is natural accumulation postdating occupation of site.	A sample of charcoal from Level 2 dated 2570 Cal BC (Beta-199061) (Table 31c). A charcoal sample from Level 4 dated 2260 Cal BC (GX-31585) (Table 31d).
II	C–F	Construction and occupation of platform. Occupation began with accumulation of gravel, compact soil on ground surface created by Layers G and H; may have been connected with construction of Wall 1 or were earlier use surface. Wall 1 was retaining wall; there are no associated plaster floors, the uppermost associated fill is predominantly rock.	
III	G, H	A period when this area was first used, with trash deposited on top of culturally sterile soil. There are two components of this phase, trash deposited in Layer H before Wall 1 was constructed may have been very general trash disposal since layer shows evidence of sliding downhill. Later, more compact trash deposit in Layer G may have served to level area prior to building Wall 1. Leveling effect visible in contours of Layer E.	A charcoal sample collected from screened contents of Level 5 dated 2700 Cal BC (Beta-184861) (Table 31e). A charcoal sample collected from screened material dated 3550 Cal BC (GX-30507) (Table 31f).

TABLE 33. Huaricanga, Sector B, Trench 1.

Stratigraphy (Fig. 47a, b)		
Layer	Description of stratigraphy	Characteristics of layer
A	Stone collapsed from structures combined with aeolian deposits of soil, ash from burning cane fields.	Somewhat compact light brown soil, irregular thickness, large rocks, fragments of clay mortar, plant fiber.
B, C	Materials collapsed from Wall 1 over Floor 1, base of Layers B and C. Wall 1 located in W corner. Wall 1 built of large regular-shaped stones without evidence of polishing, though stones were shaped. Exposed part of wall was corner of platform directly associated with Floor 1. Platform bounded by Wall 1 later expanded to remaining edge of Floor 1. Floor 1 does not extend to base of Wall 1, yet remains of plaster lip covering floor/wall joint were visible, even though wall is absent. At E side of Layer C are Walls 3 and 6. Wall 3 located in central part of trench near E profile. Only surface of wall was cleared, revealing it was constructed of large cobbles held together with small quantity of mortar. Wall 3 was remodeling of Wall 6, located in center of trench near E profile, an alignment of angular rock in clay mortar. Wall 3 built up against Wall 6, both partly covered by Floor 1.	Lumps of clay, plant remains in soft to slightly compact soil with little rock.
D	Area filled in where wall formerly stood adjacent to Wall 4. Wall 4 built in central part of trench near unit's W margin. This consisted of wall made of angular rock, held together with mortar of clay mixed with plant fiber. No remains of associated floor were identified, though this may have been in location of Layer D.	Gravel with a small quantity of plant fiber, few lithics.
E	Material above Floor 2.	Hard soil with very little cultural material, a few mollusk shells, lithic fragments.
F	Floor 2 uncovered in N end of trench between Wall 5 and Wall 2. Fire-reddened in NW corner, only small portion of floor was cleared. Further excavation could show whether Floor 2 directly associated with Wall 5 or Wall 2. Wall 5 was located in N half of Trench 1, running WNW to ESE. Upper part of wall made up of large stone blocks, some already collapsed. Many stones in walls were near original position, leaning toward N. Wall continued across entire N face of mound, all stone blocks forming wall are tilted same direction, suggests a single event could have caused uniform displacement.	Compact, medium-fine beige soil with a few shell fragments, botanical fragments.
G	Floor on platform created by Wall 7, retaining wall in extreme N end of trench, perpendicular to and below Wall 2 at foot of mound. Wall 7 constructed of large stones in clay mortar. Wall 2 at N end of trench, retaining wall along lower part of mound. Wall was constructed of medium and large slabs mortared with clay. Stones appear to have fallen from upper course, revealing flat, unpolished faces. Wall was associated with fill in layers G and H, and Wall 7.	Very hard beige soil with numerous angular rocks of all sizes. A few shell fragments present.
H	Fill below Floor G.	Highly compact layer contained a few specks of charcoal.
I	Fill below Layer H.	Soil without cultural material.

Phases of occupation

Phase	Layers	Description	Dated samples
I	A	Corner of low platform bounded by low wall or row of rocks.	
II	Wall 1, Floor 1, B, C	Floor 1, associated with Wall 1 and edge of platform. Surface of floor highly deteriorated, very irregular, N side completely destroyed. Gap between Floor 1 and Wall 1 may be remodeling or erosion.	A sample of charcoal from Layer C was AMS dated to 2430 Cal BC (ISGS-A0481) (Table 31g).
III	Wall 3, Wall 6	Wall 6 formed step or low platform parallel to Wall 1. Wall 3 appears to be later remodeling of Wall 6. Floor 1 originally extended from Wall 1 over Walls 3 and 6.	
IV	Layer D, Wall 4	Layer D between end of Walls 1 and 6, ending at Wall 4.	A sample of plant fibers from N side of Layer D near Wall 4 dated to 1040 Cal BC (GX-30506) (Table 31h).
V	Layer E, Wall 5	Wall 5 and collapsed stones, extend to Wall 2, margin of area cleared.	
VI	Layers F–I	Floor 2 and material below it including Wall 7 and Floor G.	

TABLE 34. Huaricanga, Sector C, Profile 1.

Stratigraphy (Fig. 48)			
Layer	Description of stratigraphy		Characteristics of layer
A	Fill at the top of unit.		Steep slope minimally cleared of loose soil and rock. Area composed of fill, rock in dirt matrix, no evidence of <i>shicra</i> bag construction. Clearing moved to lower, more stable area.
B	Series of clay use surfaces, floors, remodeling efforts.		Hillside's irregular slope made small sections of floor visible in stepped arrangement, including Floors a-f, each fragmentary. Some overlapped, revealing at least four layers of remodeling. Tilt to floors as area eroded made it difficult to recognize separate fragments that may be part of single floor collapsed unevenly. At base of floors were a series of rocks, remains of Wall 1.
C	Construction fill.		<i>Shicra</i> bags.
D	Wall 2 at the base of Layer C.		Potentially retaining wall for entire construction, only a portion preserved. Some rocks very large, reminiscent of wall construction at Initial Period sites (e.g. Cerro Sechin), where monoliths were incorporated into wall with intervening space filled by smaller rocks, clay mortar.
E	Series of use surfaces below Wall 2.		As in Layer B, these all fragmentary, suggest period of construction, remodeling of use surfaces and floors.
F	Fragmentary floor surfaces 6a and 6b.		
G	Construction fill.		Small rock, beige soil.
H	Ashy soil below the floors in Layer G.		Trash deposited as part of mound construction.
I	Material around Wall 3.		At top of Wall 3 a group of seven distinctive small clay tablets were uncovered (Fig. 50). Fragments were found together in rubble, each carefully shaped and finished with yellowish-cream or self slip. Tablets were unmarked, unique.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A	Final period of construction. With additional excavation, area might reveal more detail about final phases of occupation.	
II	B, Wall 1	Occupation of mound over period during which Wall 1 and adjacent floors constructed and remodeled at least six times. Floors seem to have been supported by Wall 1, though the remains of wall are scanty.	
III	C, D, Wall 2	Construction of Wall 2 and material between Walls 1 and 2.	Radiocarbon dates of 2440 Cal BC (ISGS 5531) and 2620 Cal BC (ISGS 5514) (Table 31j, k) were obtained from Layer C. A date of 2340 Cal BC (Beta-183322) (Table 31i) was obtained from Layer D below Wall 2.
IV	E, F, G, H	Construction of Wall 3 and material between Wall 2 and Wall 3.	A sample of plant fiber from Layer F dated 2800 Cal BC (GX-30508) (Table 31l).
V	I, Wall 3	Construction from base of mound to Wall 3.	

TABLE 35. Huaricanga, Sector C, Profile 3.

Stratigraphy (Fig. 52)			
Layer	Description of stratigraphy		Characteristics of layer
A	Layer of surface material from collapse of structures built on mound.		Medium, large-sized angular rock, loose dark gray soil, wind-blown sand, marine shell fragments, botanical remains. Contemporary trash in uppermost layer comes from proximity of highway and grazing goats.
B, Wall 1	Construction of Wall 1 and fill behind it. Wall 1 appears to be retaining wall filled with Layers B and C as part of mound construction.		Small stones, clay mortar with plant fiber, a mix often used as plaster, though material is no longer attached to wall. Wall 1 built of medium-sized and large rocks with flat exterior facing NW, clearly visible from highway (Fig. 53). Visible wall runs SW to NE 5 m, 60 cm high.
C	Construction fill with a lens of compact clay mortar.		Medium-sized rocks, clay mortar.
D	Layer of rocky fill.		Rocks of different sizes in loose beige soil.
E	Compact soil layer with fine gravel, small rocks.		Shell fragments, plant fiber.
F	Construction fill.		Medium-sized rocks, clay mortar fragments.
G	Series of floors, use surfaces, fill between floors, considered single layer, appear to be successive remodelings or treatments of surface.		Ash, fine gravel in alternating layers.
H	Original ground surface.		Soil with no cultural material.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A	Postdates final occupation of mound, consisting of material collapsed from mound itself, structures that were on top of it.	
II	B, C, Wall 1	Period of time when Wall 1 was in use.	A date of 2220 Cal BC obtained from charcoal sample in Layer C (ISGS-5519) (Table 31m).
III	D, E, F	Construction episode associated with fill in Layers D–F, prior to construction of Wall 1.	
IV	G	Earliest occupation of area visible at base of roadway, Layer G. At least seven floor fragments identified in profile, patches of ash may indicate presence of hearths. Area may have been residential prior to start of mound construction.	A charcoal sample from this layer dated 2390 Cal BC (Beta-183321) (Table 31n).

TABLE 36. Huaricanga, Sector C, Test Unit 2.

Excavation (Fig. 54)			
Level	Thickness	Description	Contents
0	0-8	Surface disturbance included aeolian loose grayish brown soil.	Shell, lithics, modern trash.
1	16-21	Loose soil with numerous rocks, some charcoal, ash.	Substantial quantity of marine shell comprised cultural material. Level not uniform, reddish soil in NW portion, compact earth with rock in S half.
2	3-17	Reddish soil appeared to be result of burning.	Associated with ash, plant remains, shell, one ceramic fragment.
3	0-20	Compact surface associated with broken shell, probably use surface, as shell was more finely broken than in previous levels. Inclined surface of deposit also noted.	
4	8-18	A zone of ashy soil and cultural material that was less compact than the material in Level 3.	Base of unit was reached over portion of area where soil was reddish and without cultural content.
5	18-33	Included base of pit noted as Phase VI.	Gravel with some charcoal, few lithics.
Stratigraphy			
Layer	Levels	Description of stratigraphy	Characteristics of layer
A	0	Contemporary trash, corn, animal dung from seasonal encampment of herders.	Loose, powdery soil on surface, including shell, lithics.
B	1-3	Loose soil with abundant medium-sized rocks, large quantity of shell, some ash. Several different activity areas, or corner of burned area with associated work area of unburned, compacted material. These activities could be historic or recent due to location of unit beside highway.	Fire-cracked rock, charcoal, shell, very few botanical remains. Within Layer B, Feature 4 was pocket of burned organic material, dark brown color, fragments of burned fiber visible. Layer of reddened soil above suggests Feature 4 was remains of a hearth.
C	1-3	Partially compacted soil containing plant remains, lithics. Feature 3 within this layer was an area of compact clay, possibly mortar.	Some stone mixed into this layer along with smaller fragments of charcoal, shell suggests a structure. Form was not distinctive, test unit not extensive enough to be certain.
D	1-3	Distinct layer of concentrated ash, charcoal.	Layer was darker than those adjacent, contained greatest variety of cultural material, charcoal, shell, lithics, botanical remains. Some lithics appeared to be heat-fractured. Layer covered entire unit, closest to surface on N, deepest on S.
E	3-5	Deposit of fill, appears to have been borrow pit, pit feature filled with debris, trash for disposal or to fill and level area. Features 5 and 6 are thin lenses of ash in Layer E extend into deposits suggesting they were individual deposits of ash in pit filled with mixed debris. Material in Layer E not dark, making lenses of ash stand out.	Rock, plant fiber, shell.
F	3-5	Material appears to have been cut by pit feature in Layer E, this layer found only on N side.	Consistency of the soil different from other levels, highly compact, many fragments of fractured rock. Feature 7 is thin layer of ash within Layer F. Contents of feature similar to Layer D, organic material, shell, lithics, ash.
G	4, 5	Material below pit included as Layer E.	At N end, layer consisted of orangey, fine sand, no cultural material. At center and S side pit, layer into which most of Layer E was cut, no cultural material, but soil was dark gray.
Phases of occupation (Fig. 53)			
Phase	Layers	Description	Dated samples
I	B, C	Accumulation of rock, soil some cultural material after area ceased use for trash (Layer D). At S end of profile, Layer C, materials in Feature 3 may indicate construction, but no distinctive structural elements found. Phase ended with accumulation of fill including cultural material, possible debris from collapse of nearby structures, or from recent road work.	
II	D	Renewed use of locality for disposal of organic material, household trash, rich in charcoal, botanical remains, distinctive dark color. Material in Layer D deposited on flat, sloping ground surface, top of Layer E.	This layer dated to 2400 Cal BC (ISGS-5518) (Table 31o).
III	E	Period when borrow pit was filled with debris, trash associated with habitation. Surface was used long enough to form distinct, even surface, suggests lapse between Layer E formation and all Phase I and II deposits.	
IV	F, G	During first use of locality, borrow pit was excavated into original ground surface (Layer G). Layer F may represent activity prior to pit, but small portion uncovered that not sufficient to show extent of deposits and whether Layer F represents even earlier activity.	

TABLE 37. Radiocarbon dates from Shaura.

Sample	Provenience	Level/Layer	Material	Lab number	Cal BC	RCYBP	±	13c/12c	68.2-1σ range	95.4-2σ range
a	Trench 1	Layer 2	charcoal	ISGS-5522	1330	3080	70	-26.4	1427-1265 (100.0)	1496-1187 (95.4); 1183-1154 (2.8); 1146-1130 (1.8)
b	Trench 1	Layer 3	charcoal	Beta-183327	2050	3660	60	-23.9	2134-2078 (34.0); 2062-1953 (66.0)	2201-1889 (100.0)
c	Test Unit 1	Level 3	charcoal	Beta-183326	1880	3540	60	-25.6	1950-1862 (54.0); 1851-1772 (46.0)	2031-1737 (98.6); 1711-1695 (1.4)

TABLE 37B

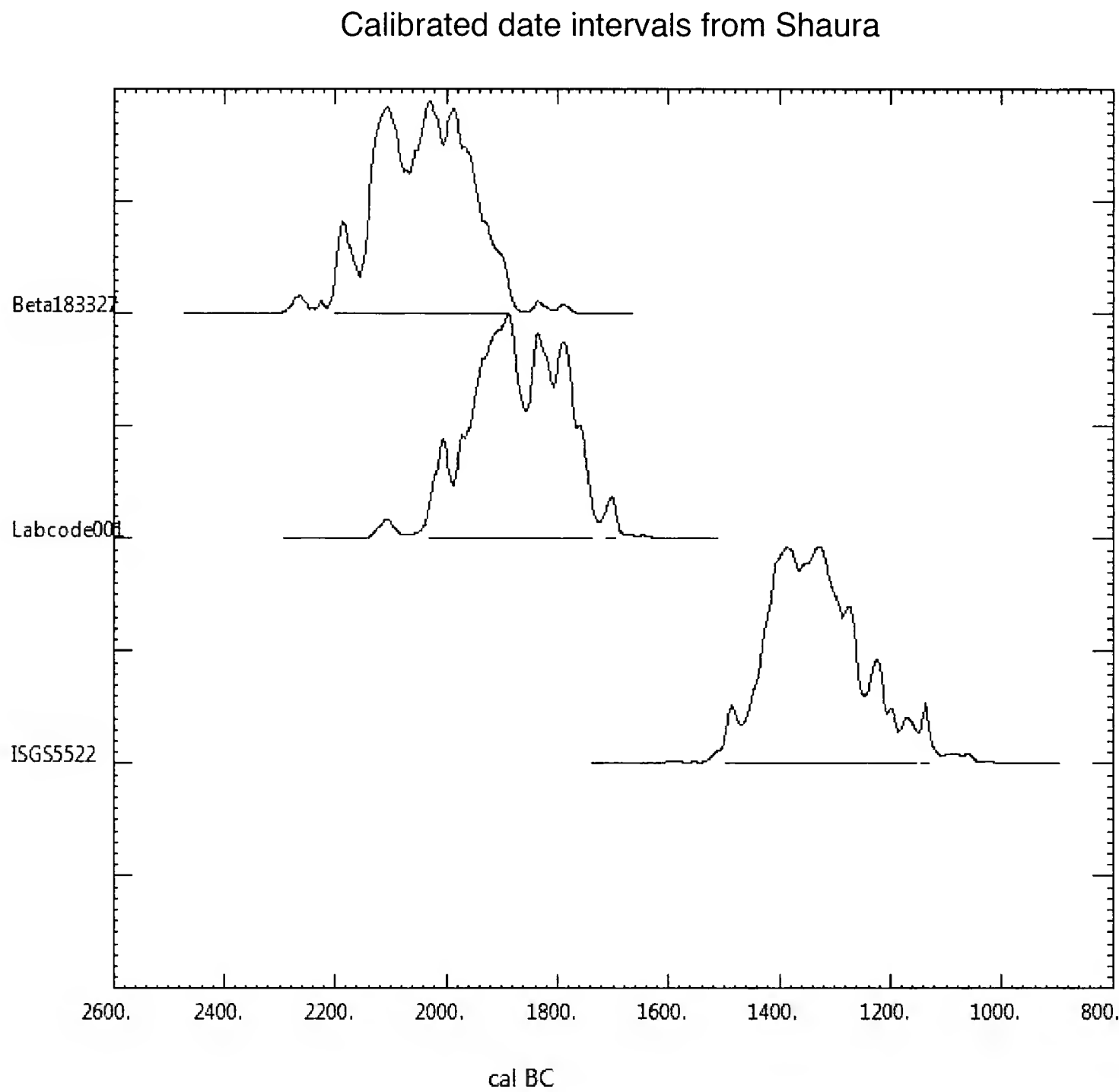


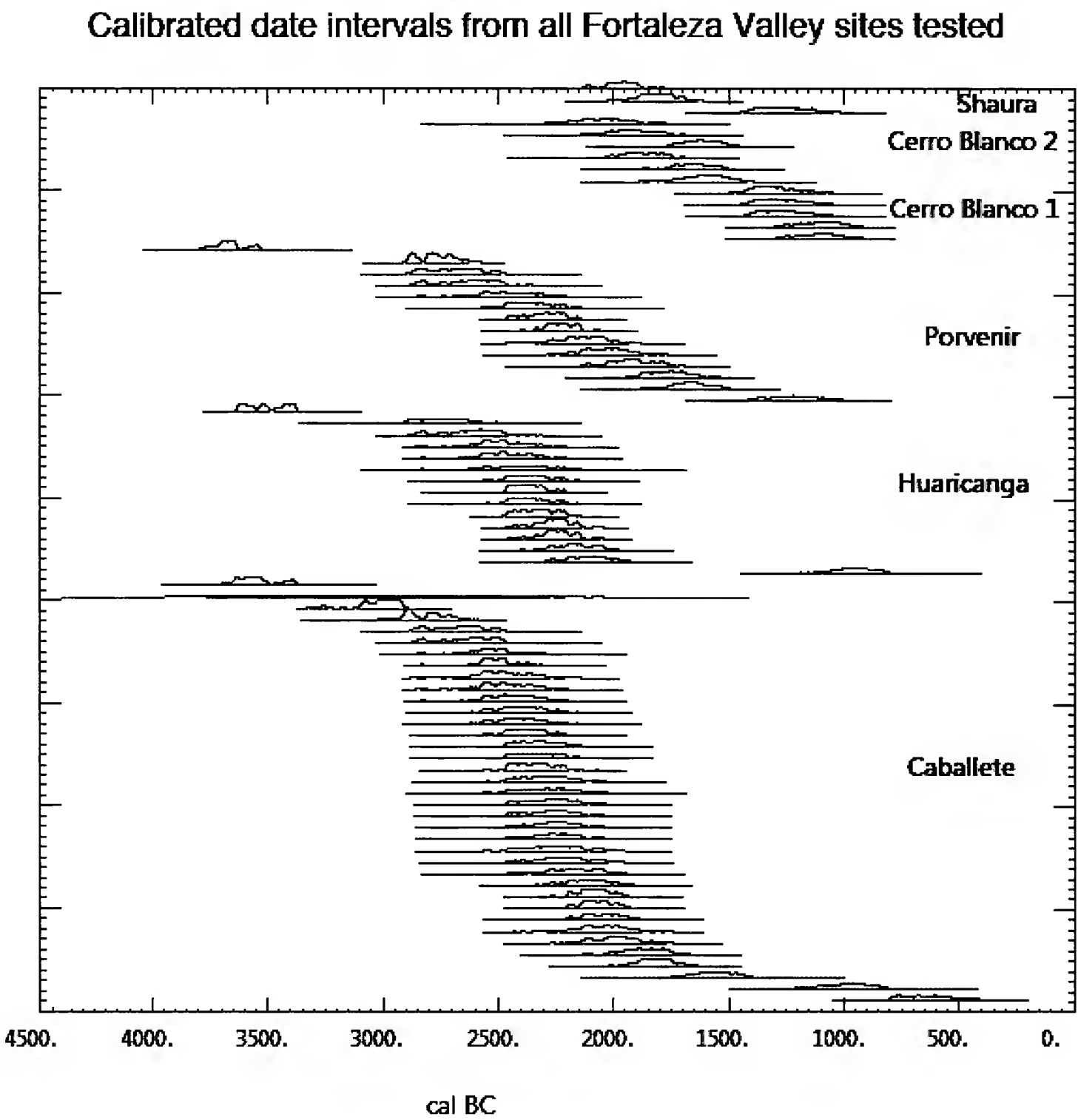
TABLE 38. Shaura, Trench 1, main mound.

Stratigraphy (Fig. 57)			
Layer	Description of stratigraphy		Characteristics of layer
A	Modern disturbance.		Medium-sized rocks, cobbles in light brown soil.
B	Fill, some cultural material.		Medium-sized cobbles, small rocks in light brown soil.
C	Wall.		Large cobbles mixed with loose dark brown soil.
D	Use surface extending from top of Wall 2 to base of Wall 1.		Compact light brown soil.
E	Wall.		Large cobbles, some melted adobe may be remains of mortar.
F	Use surface created above single layer of cobbles.		Fine soil over cobbles included shiny particles, probably mica. Polished boulder located on top of this surface.
G	Culturally sterile layer.		Orangey-brown hard-packed soil.
Phases of occupation			
Phase	Layers	Description	Dated samples
I	A–F	Trench 1 revealed one phase of occupation of main mound. Segment of wall with broad, plastered surface extended out in Layers E and F. Segment appears to be base of step in overall construction of step-sided structure. Irregular, polished boulder on step, its black, fine-grained volcanic rock distinct from rock used in wall construction, indicating an intentional placement (Fig. 58).	A date of 1330 Cal BC (ISGS-5522) (Table 37a) from sample of charcoal from Layer B. Charcoal from Layer C dated 2050 Cal BC (Beta-183327) (Table 37b).

TABLE 39. Shaura, Test Unit 1.

Excavation (Fig. 59)			
Level	Thickness	Description	Contents
0	5–20	Aeolian soil, highly disturbed.	Fine ash, charcoal.
1	7–28	Section of wall identified bordering SE side (Wall 1). Second wall segment crossed NW side (Wall 2), cobbles, angular granite. Remainder of level loose soil, river cobbles, remnants of clay mortar on some stones in wall. Level 1 ended with patch of thick mortar in irregular deposit, melted off Wall 2. Wall built on top of ashy layer, did not extend below base of Level 1.	Lithics, shell fragments, charcoal.
2	8	Fine gray ash across entire unit 4–5 cm thick, also filled depression in surface of level. May be remains of hearth, but very limited cultural contents suggest ash was dumped rather locality a living or work space.	Shell, charcoal.
3	20	Dry soil mixed with ash. Cultural materials decreased toward base of level.	Shell, lithics.
Phases of occupation			
Phase	Levels	Description	Dated samples
I	1	Deposit of fill above ashy layer identified in Level 2, associated walls including construction of Wall 2.	
II	2, 3	Includes ashy layer, materials below layer. Top of Level 2 ash may have been use surface. Below it, cultural materials in Level 3 diminished and excavation ceased.	Charcoal from upper portion of level dated to 1880 Cal BC (Beta-183326) (Table 37c).

TABLE 40. Calibrated date intervals from all Fortaleza Valley sites tested in 2003–2004.





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